

# **UCLA** GENERAL CATALOG 1984-85



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# Organization of the Catalog

## General Campus Colleges

### College of Letters and Science

African Area Studies  
African Studies  
Afro-American Studies  
American Indian Studies  
Anthropology  
Applied Linguistics  
Archaeology  
Asian American Studies  
Astronomy  
Atmospheric Sciences  
Biology  
Business and Administration  
Chemistry and Biochemistry  
Chicano Studies  
Classics  
Communication Studies  
Comparative Literature  
Computing, Program in  
Cybernetics  
Earth and Space Sciences  
East Asian Languages and Cultures  
East Asian Studies  
Economics  
English  
Ethnic Arts (see College of Fine Arts)  
Folklore and Mythology  
French  
Geography  
Germanic Languages  
History  
Indo-European Studies  
International Relations  
Islamic Studies  
Italian  
Kinesiology  
Latin American Studies  
Law and Society  
Linguistics  
Mathematics  
Microbiology  
Molecular Biology  
Near Eastern Languages and Cultures  
Near Eastern Studies  
Philosophy  
Physics  
Political Science  
Psychology  
Religion, Study of  
Romance Linguistics and Literature  
ROTC Programs  
Scandinavian Languages (see Germanic Languages)  
Slavic Languages and Literatures  
Sociology  
Spanish and Portuguese  
Urban Studies/Organizational Studies  
Women's Studies

### College of Fine Arts

Art, Design, and Art History  
Dance  
Ethnic Arts  
Motion Picture/Television (see Theater Arts)  
Music  
Theater Arts

## General Campus Professional Schools

### School of Engineering and Applied Science

Chemical Engineering  
Civil Engineering  
Computer Science  
Electrical Engineering  
Environmental Science and Engineering (see School of Public Health)  
Materials Science and Engineering  
Mechanical, Aerospace, and Nuclear Engineering  
Systems Science

### Graduate School of Architecture and Urban Planning

### Graduate School of Education

### School of Law

### Graduate School of Library and Information Science

### Graduate School of Management

### School of Social Welfare

## Health Science Schools

### School of Dentistry

Oral Biology

### School of Medicine

Anatomy  
Anesthesiology (Nurse Anesthesia)  
Biological Chemistry  
Biomathematics  
Medicine  
Microbiology and Immunology  
Neurology  
Neuroscience  
Obstetrics and Gynecology  
Ophthalmology  
Pathology  
Pediatrics  
Pharmacology  
Physiology  
Psychiatry and Biobehavioral Sciences  
Radiation Oncology  
Radiological Sciences (Medical Physics)  
Surgery

### School of Nursing

### School of Public Health

Environmental Science and Engineering

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# **UCLA**

## **GENERAL CATALOG 1984-85**



UNIVERSITY OF CALIFORNIA, LOS ANGELES

JUNE 1984

\$3.00

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## About This Catalog

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**On the cover:** Powell Library rotunda.

## Want Extra Copies?

Copies of the 1984-85 *UCLA General Catalog* are available for purchase at the Students' Store. To obtain a copy by mail, send a check or money order for \$5 (includes UPS or first-class postage) to ASUCLA Students' Store, 308 Westwood Plaza, Los Angeles, CA 90024, ATTN: Mail Out. Make checks payable to The Regents of the University of California. You may also charge the cost to your VISA or MasterCard by calling the Mail Out Department at 825-6064.

## 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.

Other information about UCLA may be found in the announcements of the Schools of Architecture and Urban Planning, Dentistry, Education, Engineering and Applied Science, Law, Library and Information Science, Management, Medicine, Nursing, Public Health, and Social Welfare, and in literature produced by the College of Fine Arts. Further details on graduate programs are available in the Graduate Division publication, *Standards and Procedures for Graduate Study at UCLA*.

## UCLA OFFICIAL PUBLICATIONS (USPS 646-680)

Volume 24, Number 6, June 23, 1984

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# Calendar, 1984-85

|   | Fall 1984                                | Winter 1985           | Spring 1985       |
|---|--|-----------------------|-------------------|
| First day to file undergraduate application with admissions officer, 1147 Murphy Hall (last day will depend on number of applications received)                                       | November 1, 1983                         | July 1, 1984          | October 1, 1984   |
| Last day to file graduate petitions for change of major with Graduate Division, 1225 Murphy Hall  | December 30, 1983                        | October 1, 1984       | December 30, 1984 |
| Last day to file application for graduate admission, readmission, or renewal of application with complete credentials and application fee, with Graduate Admissions, 1247 Murphy Hall | January 16, 1984                         | October 1, 1984       | December 30, 1984 |
| First day to obtain Student Parking Request forms at Campus Parking Service   | May 1, 1984                              | October 8, 1984       | January 14, 1985  |
| Distribution of registration materials by letter groups for continuing students   | June 4                                   | November 8            | February 7        |
| <i>Schedule of Classes</i> goes on sale at Students' Store, Ackerman Union and North Campus facilities  | June 8                                   | November 9            | February 8        |
| <b>*First mailing date for continuing student registration (fee payment) and enrollment in classes</b>  | June 29                                  | November 16           | February 15       |
| Academic counseling for new students is available by appointment in college and school offices  | July 1                                   | November 1            | January 22        |
| Enrollment for student health insurance at A2-143 Center for Health Sciences  | July 2-October 12                        | December 3-January 18 | March 15-April 12 |
| Last day to submit Student Parking Request for campus parking permit  | July 11 (1st run)<br>August 21 (2nd run) | November 13           | February 19       |
| Eligibility date for new and reentrant registration by mail (paperwork must be filed by this date in order to receive registration packets by mail)                                   | July 13                                  | November 1            | January 15        |
| New and reentrant students eligible to register by mail should receive registration materials at permanent address  | July 20-August 20                        | November 28           | February 25       |
| <b>*First mailing date for new and reentrant student registration (fee payment) and enrollment in classes</b>   | August 15                                | November 30           | March 1           |
| Last day to file undergraduate application for readmission with Registrar, 1134 Murphy Hall   | August 15                                | November 25           | February 25       |
| <b>*Last mailing date for all students to register (pay fees) and/or enroll by mail</b>   | August 31                                | December 7            | March 6           |
| Registrar mails:  | September 12                             | December 18           | March 14          |
| (1) Tentative Study List datamailer with results of enrollment processed by mail, and appointment for undergraduate enrollment in person  |  |                       |                   |
| (2) Validated Reg Cards for students who paid fees by mail  |  |                       |                   |
| English as a Second Language Placement Examination (ESLPE)  | September 18                             | January 2, 1985       | March 26          |
| <b>QUARTER BEGINS</b>   | September 24                             | January 2             | March 27          |
| Financial Aid check distribution to registered students begins  | September 24                             | January 2             | March 27          |
| Issuing of UCLA Student I.D. Cards to new and reentering students begins  | September 24                             | January 2             | March 27          |
| Undergraduate enrollment in person by appointment   | September 24-26, 28                      | January 2-4           | March 27-29       |
| <b>Registration in person, 8:30 a.m. to 5 p.m. (allow 30 minutes to complete fee payment process)</b>   | September 24-28                          | January 2-4           | March 27-29       |
| Chemistry/Mathematics Preliminary Examination   | September 25                             | November 13           | February 19       |
| French Placement Examination  | September 26                             | January 4             | March 29          |
| Music Placement Examination   | September 26                             | January 3             | March 28          |
| Spanish and Portuguese Placement Examination  | September 27                             | January 3             | March 28          |
| Subject A Placement Examination and Proficiency Examinations for English 3  | September 27                             | January 4             | March 28          |
| <b>INSTRUCTION BEGINS</b>   | October 1                                | January 7             | April 1           |
| Changes in Study List without fee, 8:30 a.m. to 5 p.m.  | October 1-12                             | January 7-18          | April 1-12        |
| LATE registration in person with \$50 fee, 8:30 a.m. to 5 p.m.  | October 1-12                             | January 7-18          | April 1-12        |

\*Tentative dates; refer to *Schedule of Classes*.

|   | Fall 1984  | Winter 1985               | Spring 1985        |
|---|--|---------------------------|--------------------|
| Graduate Study List Card should be filed with major department by 4 p.m.; all approved cards due to Registrar, 1134 Murphy Hall, by 5:15 p.m.   | October 3  | January 9                 | April 3            |
| Last day:   | October 12   | January 18                | April 12           |
| (1) To change Study List (add, drop courses) without fee  |  |                           |                    |
| (2) To check waiting lists for courses on computer  |  |                           |                    |
| (3) To file advancement to candidacy petitions for the master's degree with Graduate Division, 1225 Murphy Hall   |  |                           |                    |
| (4) To file graduate leaves of absence with Graduate Division, 1225 Murphy Hall   |  |                           |                    |
| (5) To file Study List Card without fee   |  |                           |                    |
| Last day to register for ETS foreign language examinations in French, German, Russian, and Spanish  | October 12   | January 25                | March 29           |
| Registrar mails Official Study List to all registered students  | October 15   | January 22                | April 15           |
| <b>WITH APPROVAL OF ACADEMIC DEAN:</b>  | October 19   | January 25                | April 19           |
| <b>** (1) Last day for graduates to ADD courses with \$3 petition fee</b>   |  |                           |                    |
| <b>(2) Last day for graduates to file Late Study List with \$50 fee</b>   |  |                           |                    |
| ETS foreign language examinations in French, German, Russian, and Spanish   | October 20   | February 2                | April 6            |
| Orientation meetings on format for master's theses and doctoral dissertations (see Manuscript Adviser, 134 Powell Library)  | October 25-27  | January 24-26             | April 25-27        |
| Last day to file bachelor's Degree Candidate Card for current quarter (without fee) with Registrar, Window A, Murphy Hall   | October 26   | February 1                | April 26           |
| <b>WITH APPROVAL OF ACADEMIC DEAN:</b>  | October 26   | February 1                | April 26           |
| <b>** (1) Last day for undergraduates to ADD courses with \$3 petition fee</b>  |  |                           |                    |
| <b>(2) Last day for undergraduates to file Late Study List with \$50 fee</b>  |  |                           |                    |
| Last day for continuing students to file applications for undergraduate scholarships for 1985-86  |  | February 1                |                    |
| Last day to submit final drafts of dissertations to doctoral committees for degrees to be conferred in current quarter  | November 2   | February 8                | May 3              |
| Last day:   | November 9   | February 15               | May 10             |
| <b>** (1) For undergraduates to DROP courses or change grading basis (optional P/NP) with \$3 petition fee and APPROVAL OF ACADEMIC DEAN</b>  |  |                           |                    |
| <b>(2) To file removal of Incomplete petition (\$5 fee) with Registrar, Window A, Murphy Hall</b>   |  |                           |                    |
| Last day to file bachelor's Degree Candidate Card (with \$3 fee) with Registrar, Window A, Murphy Hall  | November 16  | February 22               | May 17             |
| Last day to submit final drafts of theses to master's committees for degrees to be conferred in current quarter   | November 16  | February 22               | May 17             |
| Last day to file completed copies of theses for the master's degree and dissertations for the doctoral degree to be conferred in current quarter with Graduate Division, 1225 Murphy Hall | December 3   | March 11                  | June 3             |
| Last day to withdraw  | December 7   | March 15                  | June 7             |
| <b>WITH APPROVAL OF ACADEMIC DEAN:</b>  | December 7   | March 15                  | June 7             |
| <b>(1) Last day for graduates to change grading basis (optional S/U) with \$3 petition fee</b>  |  |                           |                    |
| <b>(2) Last day for graduates to DROP courses with \$3 petition fee</b>   |  |                           |                    |
| <b>INSTRUCTION ENDS</b>   | December 8   | March 16                  | June 8             |
| Final examinations  | December 10-14   | March 18-22               | June 10-14         |
| <b>QUARTER ENDS</b>   | December 14  | March 22 ✓                | June 14            |
| Last day to file applications for graduate merit-based financial support for 1985-86  | December 30  | Consult department        | Consult department |
| Unofficial copy of previous quarter's grades available at Registrar's Window A, Murphy Hall   | February 1, 1985   | May 1                     | August 1           |
| Commencement  |  |                           | June 16            |
| Academic and administrative holidays:   | July 4, 31<br>September 3<br>November 22, 23<br>December 24, 25<br>December 31,<br>January 1 | January 21<br>February 18 | May 27             |

\*\*Changes to Official Study List after this date will be considered only under extraordinary circumstances and with approval of the academic dean.



# About UCLA

# 1



# Introducing UCLA

"... in ten 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

## Humble Beginnings

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 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 University of California. Two years later, the Los Angeles State Normal School was replaced by 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 1929 the Southern Branch had earned its new name: The University of California at Los Angeles (the "at" became a comma in 1958).

## The 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 underway 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.

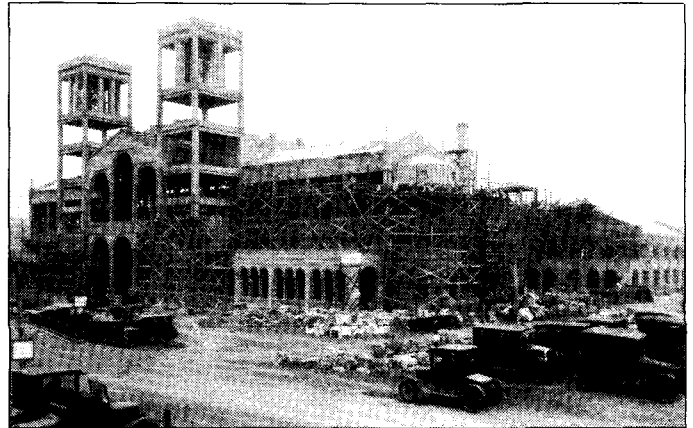
The choice of Westwood, set squarely in the path of westward-moving Los Angeles, no doubt was an important factor in determining UCLA's future growth. But in 1929, on the barren, chaparral-covered hills of Westwood, the four original buildings — Royce Hall, Powell Library, Haines and Kinsey Halls — formed a lonesome little cluster in the middle of four hundred 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 on its way to 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



Groundbreaking, September 21, 1927. Provost Ernest Carroll Moore wields the shovel as Regent Edward A. Dickson (to Dr. Moore's right) and others cheer



Not the sound of symphony, but of chisel and saw: Royce Hall under construction, 1928



Royce, Haines, Kinsey, and Moore Halls and Powell Library: the UCLA of 1929

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

Today, UCLA is a large and complex institution devoted to 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.

More than 140 buildings on 411 acres house 13 colleges and schools and serve 33,000 students. UCLA offers its undergraduates a broad and balanced general education that prepares them for the challenges of an increasingly complex world. Graduate students develop mastery of a chosen field and prepare for the practice of a profession through creative activity and research.

UCLA's top administrative officer is Chancellor Charles E. Young who has provided dynamic leadership for the campus since he took office in the fall of 1968. Dr. Young was elected to serve as chair of the Association of American Universities for 1983-84.

## The Setting

UCLA is cradled in the rolling green hills of the Pacific slope, 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. Its first-run movie theaters (about 20 at last count), restaurants, bookstores, and specialty shops of every description are just a brief walk from campus.

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.

## The Ambiance

UCLA is a place of broad vistas, spacious quadrangles, and landscaped gardens. The stately Tudor Gothic and Italian Romanesque architecture of the early buildings blends with the contemporary and modern design of the newer structures. Carefully planned flora line the walkways, surround the open lawns, and complement the architecture. Royce Hall, one of the original buildings, remains the campus symbol.

UCLA is a place of contrasts. 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. **The Visitors Center**, located in 100 Dodd Hall (825-4338), has a reception area where visitors are met, welcomed, and assisted. The center arranges group or personal tours of the campus all year round and provides information on campus events,



*Along Bruin Walk a person may pick up literature about a presidential candidate, join the Jewish Student Union, sign a petition for a nuclear free zone, register a bicycle, or join the Marines.*

concerts, exhibits, lectures, and recreation areas. **The Office of Undergraduate Admissions and Relations with Schools** (825-8764) conducts tours for prospective undergraduates.

## The 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 you will be 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.

## The 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 29,000 students is equal to that at UC Berkeley, but the UCLA campus is enriched by an additional 3,800 men and women studying in its health science 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 special academic assistance programs for new students, a staff of helpful advisers and counselors in every college 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. Lecture groups of more than 200 — especially in introductory courses — are not unusual, but in such cases students generally also enroll in discussion sections of about 25 students. Seminars and laboratory classes usually have fewer than 20 students. There is an overall ratio of one faculty member for approximately 17 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.

**ACADEMICS** — UCLA has two colleges and eleven professional schools. The College of Letters and Science and the College of Fine Arts offer programs leading to both undergraduate and graduate degrees, as does the School of Engineering and Applied Science and the School of Nursing. The other professional schools offer graduate programs exclusively: the Graduate School of Architecture and Urban Planning, Graduate School of Education, School of Law, Graduate School of Library and Information Science, Graduate School of Management, School of Social Welfare 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 94 different disciplines; graduate students may earn one of 69 master's and 89 doctoral and professional degrees.

**THE 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 Nobel laureates and many members of both the National Academy of Science and the American Academy of Arts and Sciences. Between 1964 and 1981, UCLA ranked sixth in the nation in the number of prestigious John Simon Guggenheim Fellowships awarded to faculty members.

In 1982, 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 ten in the country.

**RESEARCH** — UCLA is one of the outstanding research universities in the country, receiving approximately \$135 million a year in extramural grants and contracts to support its research activities. The University hosts several hundred postdoctoral scholars sharing its excellent research facilities. Its laboratories have seen major breakthroughs in scientific and medical research; its study centers have helped foster understanding among the various cultures of the world; ongoing pursuits of new sources of energy and safety, and the discovery 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 main criteria for faculty promotion, and distinguished teaching awards are among those most highly prized by UCLA professors.

**STUDENT BODY** — 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 the majority are from California, students come from all 50 states and 116 foreign countries to study at UCLA. Foreign students number nearly 2,200, making this one of the most popular American universities for students from abroad. Ethnic minorities comprise 32 percent of the student population.

**OTHER FACTORS** — With nearly 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. The University will play a significant role in the 1984 Summer Olympics in Los Angeles, with a 5,000-athlete Olympic Village, all gymnastics and tennis events, the drug-testing laboratory, most theatrical events of the Olympic Arts Festival, and headquarters for the Olympic Committee on its campus. 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.

## The 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 upon 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 of 140,000 students, 90 percent of them California residents. Nearly one-third 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 faculty of the University of California is internationally known for its distinguished academic achievements. On its nine campuses the University has 17 Nobel laureates, and membership in the National Academy of Science 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 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

## Research: The Discovery of Knowledge

As one of the largest research universities in the world, UCLA is renowned for its programs of faculty and student research; more than 3,000 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 organized research units are listed within four major divisions — health and 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 and Life Sciences

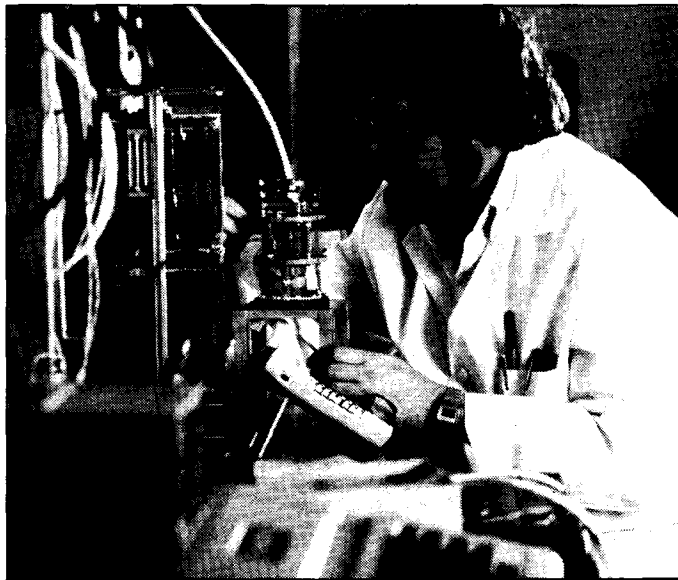
The **LABORATORY OF BIOMEDICAL AND ENVIRONMENTAL SCIENCES**, located in Warren Hall (900 Veteran Avenue, 825-9431) and funded through a contract with the Department of Energy, conducts research in the fields of biomolecular and cellular science, environmental biology, and nuclear medicine. Its major facilities include a cobalt radiation installation, a biomedical cyclotron, advanced scanning equipment, and environmentally controlled growth chambers.

The **BRAIN RESEARCH INSTITUTE**, center of neuroscience research at UCLA, is located in the Center for Health Sciences (73-364 BRI, 825-6055). It has the largest investigative program of its kind in the country, with more than 140 scientists working on problems ranging from the nerve cell to human behavior. The institute provides an environment for specific multidisciplinary research and training on the structure and function of the brain.

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, clinical studies, craniofacial biology, immunology/immunogenetics, oral neurology/pain, periodontology, and ultrastructure/cell biology. The Office of the Director is at Harbor/UCLA Medical Center in Torrance (533-3491) and in 73-016 Center for Health Sciences (206-8045).

The **MENTAL RETARDATION RESEARCH CENTER**, located in 58-258 NPI (825-5542), 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.

The **MOLECULAR BIOLOGY INSTITUTE** provides the 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**. Administrative offices are located in 168 MBI (825-1018).



The **JULES STEIN EYE INSTITUTE** is one of the best equipped centers for research and treatment of eye diseases anywhere in the world. This comprehensive facility, located in the Center for Health Sciences (825-5051), 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.

In the health and life sciences, research carried out in ORUs is complemented by research on neurological and neuromuscular diseases in the **Jerry Lewis Neuromuscular Research Center**, the **Reed Neurological Research Center**, and the **Neuropsychiatric Institute**. The **Jonsson Comprehensive Cancer Center**, one of 22 comprehensive centers in the nation, is renowned for the breadth and excellence of its cancer research. The **Center for Ulcer Research and Education** is a federally funded center doing basic and applied research on the origin and treatment of ulcers, while scholars at the **Center for Health Enhancement** are improving the health of high-risk patients by initiating life-style changes.

### Physical Sciences and Engineering

The **CRUMP INSTITUTE FOR MEDICAL ENGINEERING**, located in 6417 Boelter Hall (825-4111), applies theory and engineering practice to problems in clinical medicine. Research focuses on noninvasive physiological monitoring of human subjects, including development of experimental regimens, methods and equipment for data collection, and new mathematical techniques of data analysis, to assess the stability of these complex systems.

The **INSTITUTE OF GEOPHYSICS AND PLANETARY PHYSICS (IGPP)** is a Universitywide ORU engaged in interdisciplinary research studies of the earth, moon, and other planetary bodies, interplanetary space, and stellar interiors. Laboratories at the UCLA branch include the Space Science Center (space physics, plasma astrophysics), meteoritic studies, seismology, glaciology, petrology, geochronology, archaeology, and origins of life on earth and in the solar system. The systemwide director's office and UCLA branch office are located in Slichter Hall (information in 3839 Slichter Hall, 825-1664).



The **WHITE MOUNTAIN RESEARCH STATION** is a Universitywide ORU 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 and physical sciences. The administrative office is located in 3805 Geology (825-2093).

Among other interdisciplinary activities in the physical sciences and engineering at UCLA, researchers in the **National Center for Intermedia Transport Research** are applying the results of their particulate research to practical systems such as synthetic fuel emissions and the chemical and petrochemical industry. On another frontier, faculty and students in the **Center for Plasma Physics and Fusion Engineering** are studying the plasma fusion process in order to imitate the sun's production of energy.

## Social Sciences

The **INSTITUTE OF AMERICAN CULTURES** promotes and coordinates the activities of four major ethnic centers whose goals are to study and illuminate the histories of our country's minorities, and to apply the University's capabilities to the analysis and solution of specific minority problems. 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 Afro-American Studies** (3111 Campbell Hall, 825-7403) conducts and sponsors research on the Afro-American experience, coordinates the Afro-American Studies curriculum, publishes research results, and sponsors community service programming.

The **American Indian Studies Center** (3220 Campbell Hall, 825-7315) is one of the largest centers of its kind in the country. It acts as an educational catalyst and coordinates the needs of American Indian students with the University and the community.

The **Asian American Studies Center** (3232 Campbell Hall, 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 **Chicano Studies Research Center** (3121 Campbell Hall, 825-2363) facilitates interdisciplinary academic research related to the Chicano experience. The center has research and academic programs and maintains a publications unit and research library that are considered leading contributors to Chicano studies nationally.

In addition to the ethnic centers, UCLA has four major interdisciplinary **AREA STUDIES CENTERS** which coordinate teaching and research activities concerning major geographic areas. Some of the world's leading specialists on area studies have joined these centers, which rank among the best in the nation.

The **African Studies Center** (10244 Bunche Hall, 825-3686) is the major center for African studies in the Western U.S. It furthers teaching and research on Africa involving economics, linguistics, humanities, social sciences, and the College of Fine Arts. The center also works with the professional schools of Architecture and Urban Planning, Education, Management, and Public Health.

The **Latin American Center** (10343 Bunche Hall, 825-4571) encourages and coordinates interdisciplinary research, academic programs, and publications. By linking campus activities with developments in the field and in other institutional settings, the center benefits UCLA, the broader community of Latin Americanists, and the general public.

The **Gustave E. von Grunebaum Center for Near Eastern Studies** (10286 Bunche Hall, 825-1181) promotes research and training in basic problems related to the Near and Middle East countries in modern and medieval times. It also sponsors lectures, seminars, and conferences and promotes an extensive publications program.

The **Center for Russian and East European Studies** (334 Kinsey Hall, 825-4060) promotes and coordinates research on Russia and the countries of Eastern Europe through conferences, lectures, seminars, and academic exchange programs with Russian and Eastern European universities.

The **INSTITUTE OF INDUSTRIAL RELATIONS**, located in 9244 Bunche Hall (825-1964), is an interdisciplinary research and publishing program directed primarily toward the study of labor-management relations and related problems. It also conducts community and labor relations programs serving unions, management, and the general public.

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 Survey Research Center and the Social Science Data Archive. Training in survey research methodology is available to students through participation in the annual Los Angeles area survey. The institute is located in 11252 Bunche Hall (825-0711).

Other interdisciplinary activities in the social sciences involve the study of arms control, nuclear proliferation, and international security in the **Center for International and Strategic Affairs**. A nationally respected **Business Forecasting Project** in UCLA's Graduate School of Management forecasts short-run and long-run economic activity both regionally and nationally. And the **Center for the Study of Evaluation** in the Graduate School of Education is at the forefront of efforts to improve the quality of schooling in America through systematic evaluation practices.

## Arts and Humanities

The **INSTITUTE OF ARCHAEOLOGY**, located in 288 Kinsey Hall (206-8934), develops and coordinates activities relating to archaeology. Its major goal is to contribute to a comprehensive reconstruction of the human past, particularly as it is retrieved from excavations. Activities include excavations, management of archives and laboratories, publications, lectures, and symposia.

The **CENTER FOR THE STUDY OF COMPARATIVE FOLKLORE AND MYTHOLOGY**, located in 1037 GSM (825-4242), supports and coordinates the comparative study of folklore and mythology. Resources include the Wayland D. Hand Library, the Visual Media and Western Folklore Archives, and collections of field recordings, records, and films.

The **CENTER FOR MEDIEVAL AND RENAISSANCE STUDIES** supports the research activities of some 20 academic departments dealing with the development of Western civilization between A.D. 300 and 1650. Major programs include training research assistants, appointing postdoctoral associates and visiting professors, organizing conferences and colloquia, and sponsoring publication of research. The center is located in 11365 Bunche Hall (825-1970, 825-1880).

In other research activities, a Fulbright Fellow in the English Department is creating a new edition of the Greek Gospels using original computer programs for textual criticism. In the Linguistics Phonetics Lab, one of the best-known labs of its kind in the nation, researchers are finding new ways to analyze speech functions and make voiceprints for use in law enforcement. Art scholars are reconstructing the original drawings and manuscripts of Leonardo da Vinci. And the College of Fine Arts has established an Advanced Design Research Group to develop innovative ways to manage and store information.

# Resources for Research and Study

## The University Library System

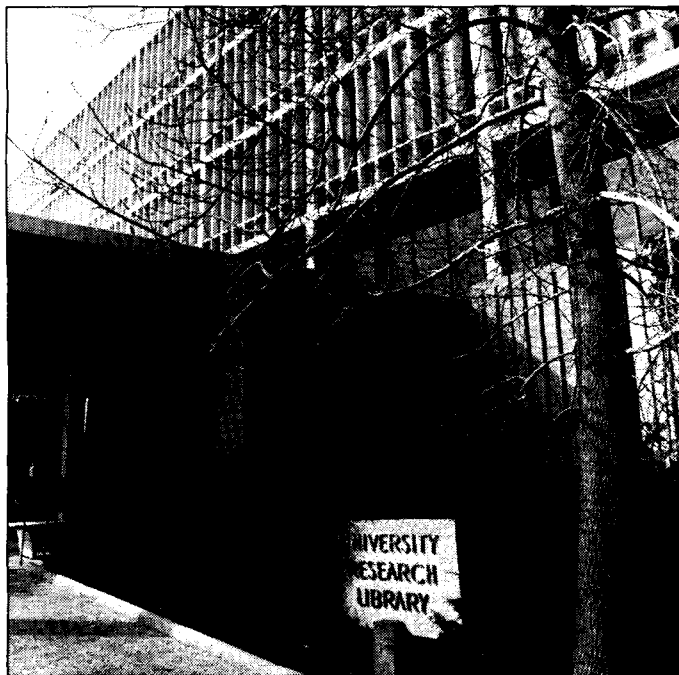
Library facilities are crucial to both study and research. The University Library on the UCLA campus is one of the country's largest and most renowned academic libraries, rated third in the nation last year by the Association of Research Libraries. The 24-unit system consists of the University Research Library, the College Library, 17 specialized subject libraries, and several reading rooms.

Collectively they contain nearly six million volumes and extensive holdings of government publications, pamphlets, manuscripts, maps, microtext editions, music scores, recordings, and slides. They regularly receive nearly 55,000 serial publications.

The main card catalog in the University Research Library lists older holdings in all campus libraries. ORION, the library's on-line information system, provides location and holdings information for materials cataloged since 1977, plus current information for materials on order or in processing. *ORION on Fiche*, available in all campus libraries, is a quarterly microfiche list of information contained in the ORION data base. Students have access to the stacks in most libraries. A handbook describing the organization, services, and hours of the University libraries is available in any of the campus branches.

### The University Research Library

The University Research Library on north campus (825-8301) is a modern six-story building designed primarily as a graduate research library serving the social sciences and humanities. The building houses nearly two million volumes arranged in open stacks, as well as the Reference Room, Circulation Department, and Periodicals Room. The Microform Reading Service, with some 400,000 microcopies of newspapers, books, and periodicals, has a variety of reading and copying equipment. Library hours on weekdays are 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 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, Anais Nin, and Carey McWilliams, as well as the private papers of Jack Benny, Charles Laughton, King Vidor, and Nobel Peace Prize winner Dr. Ralph J. Bunche, a UCLA alumnus. Other significant holdings include the Michael Sadleir Collection of nineteenth-century fiction, generally regarded as the finest of its kind, and the Ahmanson-Murphy Aldine Collection from the press of Aldo Pio Manuzio (1495-1515). The department also houses UCLA's Oral History Program, a national leader in the field with over 200 interviews with prominent individuals since the program was founded in 1959.

The **Public Affairs Service**, also housed in the Research Library, embraces official publications of the United States government, the State of California, California counties and cities, the United Nations and some of its specialized agencies, and a number of other international organizations.

### The College Library

The College Library, located in the Powell Library Building (825-1938), is designed to meet the basic study needs of most undergraduates. Its 200,000 books and periodicals are maintained in open stacks, with course reserve materials, lecture notes, past examinations, and APS (Academic Publishing Service) readings available for loan. Library hours on weekdays are 8 a.m. to 10 p.m. (5 p.m. Friday), Saturday 10 a.m. to 6 p.m., Sunday noon to 9 p.m. The **Photographic Services** office, housed in the Powell Library Building, provides a complete photographic reproduction service for duplicating books, periodicals, manuscripts, and maps. The Powell Library Building, with study space for 1,100 students, is open daily until midnight.

### Specialized Subject Libraries

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

The **Architecture and Urban Planning Library** includes materials treating architecture, building technology, city and regional planning, and selected environmental topics. The **Art Library** supports the department's art, design, and art history programs. For those interested in the Italian Renaissance, one of the greatest research centers in the world for the study of Leonardo da Vinci is the **Elmer Belt Library of Vinciana**, part of the Art Library.

The **Biomedical Library**, in the Center for Health Sciences, is one of the finest libraries of its kind in the country. Its 400,000 volumes and over 7,000 serial subscriptions serve all the UCLA health and life science schools and the UCLA Medical Center.

The **Chemistry Library** includes material on chemistry, biochemistry, and molecular biology, while education, kinesiology, and psychology (as well as teaching English as a second language) are the principal subjects covered by the **Education and Psychology Library**. Materials for engineering, astronomy, computer science, meteorology, and mathematics are kept in the **Engineering and Mathematical Sciences Library**. The **English Reading Room** mainly duplicates the Research Library's holdings in English and American literature, and major subjects covered by the **Geology-Geophysics Library** include geology, invertebrate paleontology, space science, and hydrology.

The **UCLA Law Library** has a substantial collection of nearly 300,000 volumes selected to further the course of instruction and legal research, while the **Management Library** serves the Graduate School of Management and the various subjects related to business and management.

The **Map Library**, in Bunche Hall, is one of the largest of its kind in the Western U.S. The **Music Library** houses musical scores, ethnomusicology materials, sheet music, recordings, and the personal collections of such composers as Henry Mancini, Ernest Gold, and Ernst Toch. Materials in Chinese, Japanese, and Korean are available in the **Oriental Library**, while the **Physics Library** covers all aspects of that science as well as acoustics and spectroscopy.

The **Theater Arts Library** is the home of many prestigious collections which have been donated to UCLA, such as those of actor Charlton Heston and cartoonist Walter Lantz. The collections include original scripts, contracts, correspondence, shooting diaries, and much more. And the **University Elementary School Library** contains contemporary materials for children from kindergarten through junior high school age.

### The Clark Library

Supplementing the University Library is the **William Andrews Clark Memorial Library**, with its collection of some 77,000 volumes and 14,500 manuscripts related to English culture of the seventeenth and eighteenth centuries. Its John Dryden collection is among the most complete in the world. The library, located approximately ten miles from the UCLA campus, contains noncirculating materials. Leaflets describing the Clark Library and information about University transportation to it are available at the Reference Desk in the Research Library.

## Special Archive Collections

Three unique collections, the UCLA Film, Radio, and Television Archives, are a living resource equally respected by industry and scholars. Students use them to learn the finer points of production techniques and to study the careers of leading actors and directors, many of whom also use the Archives. All three archive collections are located in 1438 Melnitz Hall and are open Monday through Friday from 9 a.m. to 5 p.m. For information and/or viewing appointments, call 206-8013.

The **FILM ARCHIVES**, with more than 20,000 titles, is the largest film center west of the Library of Congress. Among its outstanding collections are 28 million feet of Hearst Metrotone News Film dating back to 1895, a recent gift to UCLA. Other noteworthy holdings include the complete nitrate print collection of Twentieth Century-Fox, the pre-1948 studio print holdings of Paramount Pictures, and more than 600 Warner Brothers prints.

The **RADIO ARCHIVES** contains more than 40,000 broadcasts from the early 1930s to the present. Significant collections include 700 Hallmark Company broadcasts and personal collections featuring Jack Benny, Bing Crosby, and Dick Powell. The Collections of Cleve Roberts and Edward R. Murrow highlight a range of news and documentary material.

The **TELEVISION ARCHIVES**, under joint auspices of the Academy of Television Arts and Sciences and UCLA, constitutes the nation's largest university collection of its kind in the country. Its 20,000 titles include kinescope, telefilm, and videotapes spanning television history, with particular emphasis on drama and comedy from 1947 to the present.

## Art Galleries and Museums

A tour of all the UCLA museums and art galleries will take you from one corner of campus to the other. Major art exhibitions, both traveling and assembled at UCLA, are displayed in the **FREDERICK S. WIGHT ART GALLERY**, located in the Dickson Art Center. More than 200,000 visitors each year come to see a series of 12 exhibitions of painting, sculpture, photography, prints and drawings, folk art, architecture, and design. The gallery is open Tuesday from 11 a.m. to 8 p.m., Wednesday through Friday from 11 a.m. to 5 p.m., and weekends from 1 to 5 p.m. Daily tours are given at 1 p.m. Group tours are by appointment; call 825-3264. The administrative office is located in 1100A Dickson Art Center (825-1461).

On the second floor is the **GRUNWALD CENTER FOR THE GRAPHIC ARTS**, which houses a distinguished collection of some 30,000 prints, drawings, and photographs. Maintained as a study and research center for the benefit of students and the community, the center's permanent holdings include significant examples from the fifteenth century to the present. It is particularly noted for its collection of German expressionist prints formed by Fred Grunwald and comprehensive holdings of Matisse, Picasso, and Goya. The center, located in 2122 Dickson Art Center (825-3783), is open weekdays from 9 a.m. to 5 p.m.

The **FRANKLIN D. MURPHY SCULPTURE GARDEN**, located north of Bunche Hall, contains a collection of almost 70 major works by Rodin, Matisse, Calder, Lachaise, Lipchitz, Moore, Miro, Hepworth, and many other late nineteenth- and twentieth-century masters. All works in the growing collection, situated on a picturesque five-acre expanse, are private gifts to the University.

The **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, located in 55A Haines Hall (825-4361), offers assistance with instruction and research and sponsors major exhibitions, lecture programs, and symposia. Gallery hours are noon to 5 p.m. Wednesday through Sunday.



*An exhibit of Yugoslavian dance occasions and festive dress at the Museum of Cultural History.*

## Other Resources

The **OFFICE OF ACADEMIC COMPUTING (OAC)**, located in 5905 Math Sciences, is responsible for all general-purpose academic computing activities on the UCLA campus. In support of instructional and research activities, OAC provides a broad range of computing services to the UCLA community. Computer activities are supported by an extensive library of application programs, consulting services, and reference documentation.

UCLA's principal computing system is the IBM 3033, available to all colleges, schools, and departments within UCLA. Time-sharing terminals and remote-job-entry stations are located throughout the campus. Several kinds of graphics equipment are also available.

In addition, any registered student or faculty member can obtain an account free of charge to use the IBM 4341 computer for independent research or to learn programming; apply in 4302 Math Sciences (825-7548). The IBM 4341 is also used in conjunction with specific courses. Access terminals are located in GSM, Math Sciences, Boelter Hall, and other locations throughout campus.

The **DIVISION OF LABORATORY ANIMAL MEDICINE**, located in 1V-211 CHS (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.

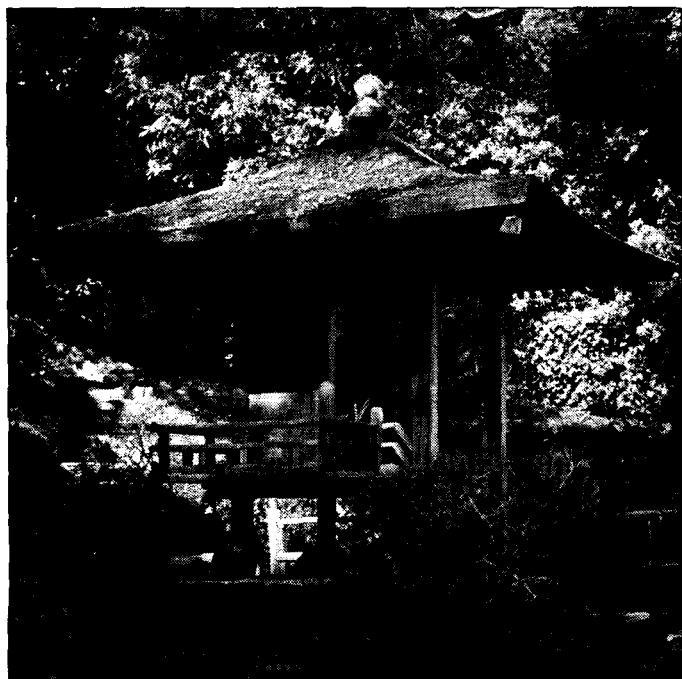
The University of California **NATURAL RESERVE SYSTEM** offers 26 reserves statewide to be used for field studies in unspoiled natural sites and for protected scientific experiments. Several reserves are close enough to campus for daily access. For more information, contact Arthur Gibson, 124 Botany (825-8062).

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, as well as collections of algae, fungi, and bacteria. For more information, contact James Northern, 1303 Life Sciences (825-1282).

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 **MILDRED E. 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 and ornithological teaching and research, as are the 250,000 dried plant specimens in the Herbarium. This peaceful wooded area, a center for testing the usefulness of woody subtropical plants, is a favorite spot for quiet strolls. The administrative office is located in 124 Botany (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 said to be one of the most authentic reproductions of Kyoto gardens in the Western world. 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 conferences and receptions, and by anyone wanting a serene setting for meditation and solitude. It is open to individual visitors and groups by reservation only. Hours are Tuesday 10 a.m. to 1 p.m. and Wednesday noon to 3 p.m., with Friday set aside for group visits. Call the Visitors Center at 825-4574.

## Supplementary Educational Programs

In addition to the regular academic programs which are described in Chapters 5 through 17 of this catalog, the following optional programs are available to UCLA's undergraduate and graduate students.

### Summer Session

UCLA offers two six-week Summer Sessions each year. More than 400 courses are offered, drawn from approximately 50 UCLA departments. Many students take advantage of Summer Session 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 quarter, or complete graduation requirements more quickly.

Admission to Summer Session does not constitute admission to a regular UCLA session in either undergraduate or graduate standing. Students who wish to attend the University in regular session must follow admission procedures described in Chapter 2 (undergraduate) or Chapter 3 (graduate).

If you are an undergraduate registered in regular session, you may attend UCLA Summer Session for full unit and grade credit. Summer Session work is recorded on your UCLA transcript, and grades earned are computed into your grade-point average. Check with your college or school counselor about the possibility of applying these courses toward minimum unit requirements and for any limitations the college or school may impose on Summer Session study.

If you are a regularly enrolled graduate student, you may, with departmental approval, take regular session courses offered in Summer Session for credit toward a master's or doctoral degree; consult your graduate adviser in advance concerning this possibility. Summer Session courses may also satisfy the academic residence requirement for master's or doctoral degrees (see Chapter 3 for details).

Unlike enrollment in regular session, you may attend another college institution for credit while you are enrolled in Summer Session. Courses taken in Summer Session cannot be taken on a Passed/Not Passed or Satisfactory/Unsatisfactory basis without an approved petition from your college or school or the Graduate Division. Applications and more information on Summer Session are available in 1254 Murphy Hall (825-8355).

### University Extension

Serving approximately 100,000 adult students each year, UCLA Extension is the largest university continuing education program 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's 4,500 Extension classes are innovative and experimental in content, format, and teaching methods. Credit and noncredit courses are offered in nearly every academic discipline and in many interdisciplinary areas. 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 the sections on "Concurrent Enrollment and Transfer of Credit" and "Courses of Instruction" in Chapter 4. Graduate students should also see "Transfer of Credit" in Chapter 3.

The Extension Advisory Service offers assistance in planning long- or short-term study through Extension. The office is located in 114 UCLA Extension, 10995 Le Conte Avenue (206-6201). To obtain the current *UCLA Extension Catalog*, call 825-8895. The Registration Office is open 8 a.m. to 6 p.m. weekdays and until 5 p.m. on Friday (825-9971).

### Education Abroad Program (EAP)

Each year, more than 650 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, EAP offers study opportunities on more than 40 different campuses in 25 countries: Australia, Austria, Brazil, China, Egypt, England, France, Germany, Hong Kong, India, Ireland, Israel, Italy, Japan, Kenya, Mexico, Norway, Peru, Scotland, Sierra Leone, Spain, Sweden, Togo, USSR, and Wales. Participants generally spend a full academic year abroad, enjoying a unique opportunity to enhance language skills and become involved in the culture of the host country. A special orientation program and, when necessary, intensive language training are included. During the year UC faculty members at the host campus assist with scholastic or personal problems.

EAP is open to all undergraduate students who have completed a minimum of 90 quarter units (junior standing) prior to departure, at least a B average (3.0 GPA) overall at the time of application, and the support of the UCLA EAP Selection Committee. Some overseas study centers 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 \$5,200 to \$8,000, but University financial aid is available. Applications must be filed several months in advance. For more information, contact the EAP Office in 2221B Bunche Hall (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 these colloquia, call the secretary of the Provost of the College of Letters and Science at 825-4621.

**African Studies** — The African Studies Center annually sponsors at least one interdisciplinary colloquium on Africa which focuses on topics in the social sciences or humanities. It is the policy of the center to organize its colloquia so that they can be taken for course credit at the graduate or undergraduate level or attended as open lectures. The center will host the African Studies Association Annual Conference in October 1984. For further information, contact John Distefano at 825-2944.

The **Jacob Marschak Interdisciplinary Colloquium on Mathematics in the Behavioral Sciences** provides a forum for interaction among faculty and students interested in the application 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 GSM 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 towers of Royce Hall are visible through the Romanesque windows of Powell Library.

# Student Life

## Living Accommodations

Where you live while attending UCLA can play an important role in your total college experience. Nearly half of UCLA freshmen live on campus, but the majority of undergraduates commute. About a quarter of the total student population lives at home.

There are many different housing options available, though the housing shortage on and near the UCLA campus means your first choice may not be available. You should therefore consider all housing options, decide early which ones you plan to pursue, and apply 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. Some students even pay rent year-round to insure accommodations, and try to sublet during the summer months.



The **UCLA Housing Office**, 78 Dodd Hall (825-4491), provides information and current listings on University-owned apartments, cooperatives, fraternities, sororities, private apartments, roommates, rooms in private homes, room and board in exchange for work, and temporary housing. It also has bus schedules, area maps, neighborhood profiles, and counselors to help resolve landlord-tenant conflicts. A current Registration Card or letter of acceptance and a valid photo identification card are required for service.

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

*UCLA Housing Options and Information*, a booklet which covers the housing situation in much greater detail, is mailed to all undergraduates who apply to the University. Graduate students should request the booklet when they are accepted for admission.

### On-Campus Housing

Living on campus can add an extra dimension of enjoyment and convenience to your UCLA experience; the demand, however, currently ex-

ceeds the space available. Four residence halls (Dykstra, Hedrick, Rieber, and Sproul Halls) and two residential suite complexes (Northern and Southern) accommodate nearly 4,000 undergraduates. There is one residence hall, Mira Hershey Hall, which houses some 335 graduate students. All on-campus housing is coed and within walking distance to classrooms.

Residence hall rooms are shared by two students. Residential suites, shared by four students, consist of two bedrooms, a full bathroom, and a common living room. The residence hall cafeterias, which also accommodate students in the residential suites, serve 19 meals per week.

Applications for on-campus housing are contained in the *UCLA Housing Options and Information* booklet. It is not necessary to wait until you receive your notice of admission to apply for housing. Applications should be submitted by:

March 14 (May 14 for graduate students) for Fall Quarter 1984  
October 31 for Winter Quarter 1985  
January 31 for Spring Quarter 1985

On the day following each of the above dates, a lottery will be held to determine the order in which students will be accepted. The full cost for the 1984-85 academic year (Fall, Winter, and Spring Quarters, excluding vacation periods) ranges from \$2,390 to \$2,557 for residence halls and from \$2,990 to \$3,199 for suites, plus a \$19.50 membership fee in the On-Campus Housing Student Association.

The **Office of Residential Life**, in the Residential Life Building next to Sproul Hall (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.

### Family Student Housing

UCLA maintains nearly 700 off-campus apartments for married and single-parent students on Sawtelle and Sepulveda Boulevards and 60 units on Barrington Avenue, about five miles from campus. Unfurnished one-, two-, and three-bedroom units are available. Rentals for 1984-85, excluding utilities, are expected to range from \$287 to \$425 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 must accompany your application. Call the Family Student Housing Office (391-0686) for up-to-date information.

### University-Owned Apartments

Approximately 650 students live in three off-campus apartment buildings owned by the University. Two of the locations are within walking distance of campus and the third, about five miles south, has free shuttle bus service on weekdays. Rental rates vary depending on the location and size of the apartment. There is no waiting list and apartments are rented on a first come, first served basis. Listings are posted in the UCLA Housing Office as vacancies occur.

### Cooperatives

Cooperatives provide a community atmosphere similar to residence halls except that you must work three to six hours per week as partial payment for room and board. There are five privately owned, nonprofit groups within walking distance of campus. Room and board rates for 1983-84 varied between \$454 and \$840 per quarter. Cooperatives normally have long waiting lists, so apply early. For applications and information, write

directly to each cooperative. Addresses are available in the UCLA Housing Office.

## Fraternities and Sororities

Some 2,000 Bruins live in the fraternity and sorority houses which border the campus on the west and east sides respectively. To live in a "Greek" house you must participate in rush and join that particular organization, though membership does not guarantee housing accommodations. For more information, contact the UCLA Interfraternity Council (fraternities) or the Panhellenic Council (sororities) through the Dean of Students Office, 2224 Murphy Hall (825-3871).

## Apartments

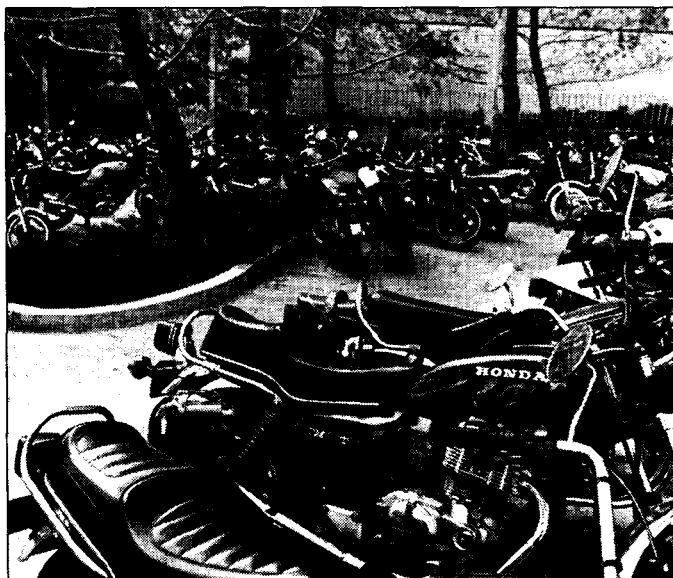
If you would like to rent an apartment off campus, you must consider the kind of living arrangements you can afford. UCLA is located in an affluent area of Los Angeles; rentals decrease as you move farther from campus. Apartments within three miles of UCLA (Westwood, West Los Angeles, parts of Brentwood and Santa Monica) average \$400 per month for efficiency units and \$550 for one-bedroom units. Apartments more than four miles away (Palms, Mar Vista, Culver City) usually cost \$50 to \$100 less. Because they change daily, listings cannot be mailed or given over the phone; they are posted in the UCLA Housing Office.

## Temporary 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. Some offer discounts to UCLA students. In addition, several fraternities have rooms to rent for the summer at low rates. Check with the Interfraternity Council through the Dean of Students Office (825-3871). Hotel and motel listings are available in the UCLA Housing Office.

## Transportation

There are several different means of transportation to and from campus other than using your car. Bus lines connect UCLA to Santa Monica, Culver City, Beverly Hills, and most of Los Angeles. Bicycles, mopeds, and motorcycles are all popular ways to get around; several bike paths in the local area make your ride easier and safer, and there are parking areas on campus specially marked and equipped for these vehicles. Many students also make their own carpooling and vanpooling arrangements to save money and make the daily commute more pleasant.



All of these alternatives are described in *How to Get to UCLA Without Using Your Car*, a booklet which also contains a ridesharing application, bus routes, area maps, and a host of helpful hints. It is available at the Campus Parking Service (Structure 8, Level 2, Westwood Plaza at Strathmore Place), at the UCLA Housing Office, and through the Transportation Services Administration (825-7639).

## Parking Space and Permits

A limited number of parking permits for campus lots are sold to students each quarter, but parking spaces on campus are at a premium and not all students who request a permit will receive one. Obtain a Student Parking Request at the Campus Parking Service (Structure 8, Level 2) and return it by the deadline. Check dates on the Calendar at the beginning of this catalog or in the quarterly *Schedule of Classes*.

Parking assignments are based on the distance you live from campus, work commitments, and other information you provide. Students with physical disabilities that preclude walking long distances may apply for parking permits through Student Health Service. If you do not receive a permit, you must reapply every quarter to be reconsidered. For more information, call the Campus Parking Service at 825-9871.

## 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.

**THE COOPERAGE** — On the A Level of Ackerman Union, the Cooperage offers Mexican food, pizza, grill items, croissants, and special salads. In addition to the innovative menu you will find a stage and sound system for live entertainment and a large-screen TV for major events. The Cooperage is open weekdays from 8 a.m. to 12:30 a.m. (1:30 a.m. Friday), Saturday 11 a.m. to 1:30 a.m., Sunday noon to 11 p.m.

**NORTH CAMPUS STUDENT CENTER** — This facility, just south of the Research Library, offers a variety of pastas, deli and garden sandwiches, a wide selection of international-style entrees, hamburgers, and a salad bar. An outside cart offers quiches and specialty salads. North Campus is open for breakfast, lunch, and dinner. Hours are 7:30 a.m. to 11 p.m. weekdays (8 p.m. Friday), Saturday 10 a.m. to 6 p.m., Sunday 11 a.m. to 9 p.m.

**THE BOMBSHELTER DELI AND BURGER BAR** — This unique food service in the center of the Court of Sciences offers an assortment of traditional deli sandwiches, hamburgers, and salads at reasonable prices. "Gypsy breakfasts" are served in the morning. It is open weekdays from 7:30 a.m. to 5 p.m., Saturday 10 a.m. to 3 p.m.

**THE TREEHOUSE** — Located on the first floor of Ackerman Union, the Treehouse is open for breakfast, lunch, and dinner and features Asian and Italian-style dishes, as well as a variety of traditional American favorites. Grilled-to-order sandwiches are offered at the **Hole-in-the-Wall**. The Treehouse is open weekdays from 7 a.m. to 7:30 p.m. (3 p.m. Friday).

Adjacent to the Treehouse is the **Sandwich Room**, where you can find a variety of low-cost, made-to-order sandwiches, including Italian-style hot or cold submarine sandwiches. Weekday hours are 8 a.m. to 4 p.m. (3 p.m. Friday).



**CAMPUS CORNER** — The oldest of the ASUCLA food facilities, the Campus Corner is located just across Bruin Walk from Kerckhoff Hall. Soft frozen yogurt, hamburgers and French fries, and a wide range of pita bread pocket sandwiches are available. It is open weekdays from 7:30 a.m. to 5 p.m. (4 p.m. Friday).

**THE KERCKHOFF COFFEE HOUSE**, on the second floor of Kerckhoff Hall, offers Baskin-Robbins ice cream specialties and a variety of teas, coffees, and potages. Live entertainment is featured almost every night. The Coffee House is open 7:30 a.m. to 1 a.m. weekdays and 11 a.m. to midnight weekends.

**POTLATCH**, a lounge on the first floor of the Graduate School of Management, offers a variety of sandwiches, snacks, and beverages. Hours are 7:45 a.m. to 9 p.m. Monday through Thursday and 9 a.m. to 2 p.m. Friday.

**JAMES E. LUVALLE COMMONS**, opening in Fall Quarter 1984, is the newest addition to the food service family. Located adjacent to the Graduate School of Management, it will feature thick crust pizza, grilled and deli specialties, and a coffee house. Open for breakfast, lunch, and dinner weekdays, lunch and dinner weekends.

## Students' Store

The ASUCLA Students' Store, the largest on-campus retail store in the nation, is actually a mini department store with three campus locations: the B Level of Ackerman Union (825-7711), the Center for Health Sciences (13-126 CHS, 825-7711, ext. 218), and the North Campus Student Center (825-7711, ext. 216). Opening in Fall Quarter 1984, the James E. LuValle Commons will also house a students' store. You can buy a wide variety of textbooks, general books, Lecture Notes, school and art supplies, dental and medical supplies, electronic items, sporting goods, UCLA merchandise (Bearwear), clothing, food, health aids, and greeting cards. Main store hours during school sessions are 7:45 a.m. to 7:30 p.m. weekdays (6 p.m. Friday), Saturday 10 a.m. to 5 p.m., Sunday noon to 5 p.m. During school breaks hours are 8:30 a.m. to 6 p.m. weekdays, 10 a.m. to 5 p.m. Saturday, noon to 5 p.m. Sunday.

## Job Opportunities on Campus

ASUCLA Personnel provides over 1,500 part-time jobs on campus in food service, the students' stores, Graphic Services, and other departments. Listings are posted outside the Personnel Office, 205 Kerckhoff Hall (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 (825-7947). Other on-campus jobs may be available through the Placement and Career Planning Center (see "Student Services" later in this chapter).



## Check Cashing and Money Orders

Students, staff, and faculty with current UCLA identification may cash a personal check or traveler's check for up to \$50 a day, with a 25¢ service charge for each check, at the ASUCLA Service Center, 140 Kerckhoff Hall (825-2423). Check cashing hours are 9 a.m. to 4 p.m. weekdays. The Cashier's Office on the A Level of Ackerman Union will cash checks on Saturday from 11:30 a.m. to 4:30 p.m.

Students, staff, and faculty may purchase money orders for up to \$300 at this same location. There is a service charge of 50¢ for each money order. Students, staff, and faculty may also rent post office boxes here at \$8 per quarter for a small box and \$10 for a large one. Hours for both services are 8:30 a.m. to 4:30 p.m. weekdays.

The services of a notary public are available at this same location for \$5 per signature. Hours are 9 a.m. to 4 p.m. weekdays.

## Graphic Services

ASUCLA Graphic Services, 150 Kerckhoff Hall (206-0894), is the campus center for photographic, printing, copying, typographic, and other graphic services. Portraits, photography, yearbook sittings, identification and passport photographs, film, photo and darkroom supplies, and discount photofinishing are also provided. Hours are 8 a.m. to 6 p.m. weekdays and 10 a.m. to 3 p.m. Saturday. A satellite Graphic Services Center will open in the James E. LuValle Commons in Fall Quarter 1984.

## Meeting Rooms and Lounges

A variety of lounging and meeting spaces are available for use by the entire campus community. To reserve space in Ackerman Union or Kerckhoff Hall, contact the Student Union Operations Office on the A Level of Ackerman Union (825-0611); to reserve space in the North Campus Student Center, contact the information area at North Campus (206-0720). Two meeting rooms will be available in the James E. LuValle Commons when it opens in Fall Quarter 1984. To reserve the rooms, contact the Food Service Office at 825-3058.

## Travel Service

The ASUCLA Travel Service, located on the A Level of Ackerman Union (825-9131), offers a selection of domestic and international charter flights, land arrangements and charter packages, student tours, scheduled air and rail tickets, and other travel-related services. The Travel Service is open 8:30 a.m. to 6 p.m. weekdays and 10 a.m. to 2 p.m. Saturday.

## 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 publications. Governed by a ten-member Board of Control, ASUCLA operates and manages Ackerman Union, Kerckhoff Hall, the North Campus Student Center, and the James E. LuValle 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), located on the third floor of Kerckhoff Hall (825-4504), is governed by the Undergraduate Students Association Council. USAC administers the Association's \$500,000 annual operating budget through a network of student commissions (Academic Affairs, Campus Events, Community Service, Cultural Affairs, Facilities, Financial Supports, and Student Welfare) presided over by the student body president. The undergraduate student body elects officers annually.

A wide variety of **student government programs** benefit both campus and community. The Community Service Commission (825-2333) serves Los Angeles through such programs as Amigos del Barrio, offering academic and emotional support for Latino students; the Community Theater Workshop for children of low-income families; the UCLA Prison Coalition, providing activities for inmates of juvenile correctional institutions; and the UCLA Special Olympics, to name just a few. More than 1,250 students volunteer annually for community service participation.

Student government also supports the various special interest groups on campus, including the American Indian Students Association, Asian Coalition, Black Students Alliance, Gay and Lesbian Association, MEChA, and the UCLA Jewish Union.

The Campus Events Commission (825-1957) is responsible for such events as Mardi Gras and the Speakers Program (see below), as well as movie and concert programs providing campus entertainment at reduced prices.

**Graduate Student Government** — 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 "Administration" in Chapter 3.

### Clubs and Organizations

Joining a club or organization is an excellent way to make new friends and find your niche on campus. UCLA has about 350 different clubs and registered organizations — more than you will find on almost any other university campus in the country. Political, athletic, recreational, cultural, academic, and religious clubs of almost every description are represented — and if you can't find one to suit your particular interest, you can start your own.

Clubs focusing on sports and recreation are listed in the University Recreation Association Office, located in the John Wooden Center (825-3701). For a full listing of registered student organizations, contact the

**Organizational Relations Office**, 161 Kerckhoff Hall (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.

Groups registered through the Organizational Relations Office are eligible to use the services of the **Campus Activities Service Office (CASO)**, 62 Royce Hall (825-8981). CASO offers technical advice in the public events area and operates most campus public assembly facilities, classrooms, and auditoriums. Official and general purpose bulletin boards on campus, general assignment lockers, and the sale of UCLA padlocks are administered by CASO.

### Fraternities and Sororities

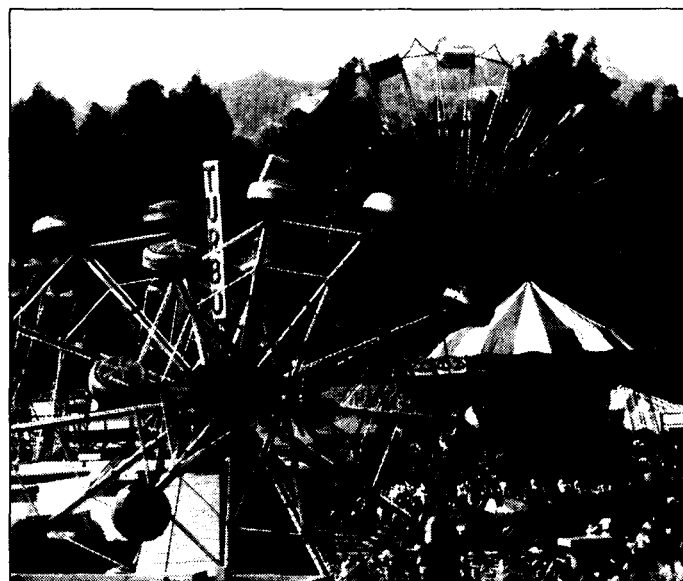
There are 31 fraternities and 17 sororities on campus, all chapters of their respective national organizations, with a total UCLA membership of more than 6,000 students.

Serving as small, cohesive communities within the larger UCLA community, fraternities and sororities offer unique experiences and opportunities for personal growth. Some Greek members are leaders in scholarship, community service, student government, athletics, and other facets of UCLA organizational activity.

You can find out more about UCLA's fraternities and sororities by contacting the Panhellenic Council (sororities) or the Interfraternity Council (fraternities) through the Dean of Students Office, 2224 Murphy Hall (825-3871).

### Mardi Gras

UCLA's annual Mardi Gras has become the world's largest student-operated collegiate activity. Each Spring Quarter over 4,000 Bruins from all types of campus organizations help to prepare and present this carnival. Students design and operate more than 65 booths featuring games, food, and live entertainment. There are celebrity judges, carnival rides, clowns, balloons, fireworks, and much more.



The three-day event generates well over \$100,000 annually for UCLA's official charity, UniCamp, a summer camp for underprivileged children in Los Angeles. For more information, contact the Mardi Gras Committee in 129 Kerckhoff Hall (825-8001) or the Campus Events Commission in 300A Kerckhoff Hall (825-1957).



## Speakers Program

Headed by the Campus Events Commission, the Speakers Program brings many of the foremost social and political leaders and entertainers to the campus. Past speakers have included Johnny Carson, Mel Brooks, Jane Fonda, and Bob Hope from the entertainment world; Jimmy Carter, Jerry Brown, Henry Cabot Lodge, Justice William O. Douglas, and French President Francois Mitterrand representing government and politics; and Dr. Margaret Mead and Dr. Martin Luther King, Jr. speaking on social issues.

## Publications and Broadcast Media

UCLA's publications and broadcast media, operated by the ASUCLA Communications Board, provide excellent training grounds for aspiring writers, journalists, photographers, radio announcers, and television performers while serving the communication needs of the campus and community. The following are the major student-operated sources of information on campus:

The **Daily Bruin**, with a circulation of 21,000, is the fourth largest daily newspaper in Los Angeles. As the principal outlet for campus news, the *Bruin* is published each weekday of the regular academic year (twice weekly during the summer) and is distributed free from kiosks around campus. Students work as reporters, editors, proofreaders, photographers, and advertising sales representatives; new staff members are always welcome. *Bruin* offices are located in 112 Kerckhoff Hall (825-9898).

Six student special interest papers are published twice each quarter to serve special segments of the campus community: **Ha'Am** for Jewish students, **La Gente** for Chicanos and Latinos, **Nommo** for Black audiences, **Pacific Ties** for Asian readers, **TenPercent** for gay and lesbian groups, and **Together** for women. Each includes news and features on political and cultural affairs — both on and off campus — of interest to its audience. Prospective staffers are welcome.

The Communications Board also publishes a literary magazine called **Westwind**. All students are encouraged to submit their prose, poetry, illustrations, photography, and even musical compositions to the magazine for consideration. The offices of *Westwind* and the special interest periodicals are located in 112 Kerckhoff Hall.

The UCLA yearbook, **Bruin Life**, is one of the largest student publication efforts on campus. Available each spring, it contains photographs and information on graduating seniors, athletic teams, fraternities and sororities, and campus activities. If you would like to participate on the yearbook staff, contact the office in 112F Kerckhoff Hall (825-2640).

Like many other large universities, UCLA has its own radio station. **KLA Radio** provides music, news, and sports 24 hours a day during the academic year (12 hours daily during Summer Sessions). The carrier current signal is sent to the residence halls and parts of Ackerman Union and Kerckhoff Hall, while the Cable FM signal is broadcast to many parts of the Los Angeles area. The studios are located at the rear of the Grand Ballroom in 2400A Ackerman Union (825-9104; request line: 825-8300). All positions, including on-air, news staff, and advertising representatives, are open to students.

## The Performing Arts

UCLA offers a rich variety of concerts, art exhibits, dance recitals, and theater productions as an integral part of University life. A full calendar of exceptional programs by the Music, Dance, and Theater Arts Departments of the College of Fine Arts provides opportunities for student involvement and personal growth.

The **Music Department** offers more than 20 performance organizations. Instrumentalists are invited to play with one of seven different bands and orchestras. An extensive ethnomusicology program allows you to per-

form with various non-Western groups. Campus choral organizations include an A Cappella Choir, the Madrigal Singers, Men's and Women's Glee Clubs, and the University Chorus which, with 120 members, is the largest of the groups.



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

The **Theater Arts Department**, one of the finest in the country, offers students several opportunities for artistic expression. Each year the Theater Division presents a series of major productions to the general public. The Motion Picture/Television Division produces about 300 student-directed films each year in addition to hundreds of television programs. Professionals appearing on campus frequently visit classes to share their skills and many, including Robert Reed, Carol Burnett, Hugh O'Brian, Samuel Goldwyn, Jack Nicholson, and Natalie Wood, have established awards and scholarships in the performing arts at UCLA. The Theater Arts Library houses many noteworthy collections (see "The University Library System" and "Special Archive Collections" earlier in this chapter).

## Be a Spectator

If you'd rather be entertained than do the entertaining, UCLA's **Center for the Performing Arts** stages more than 200 events each year. Ever since Royce Hall was dedicated in 1929, UCLA has been a premiere West Coast showcase for the artistry of new talent, as well as the mastery of the world's leading artists. The Los Angeles Philharmonic and Chamber Orchestras appear regularly each season, as do several major dance ensembles and theatrical companies. Numerous celebrities have performed on UCLA stages, from Luciano Pavarotti to Elton John, Arthur Rubenstein to Carlos Montoya, Marian Anderson to Andy Williams, Marcel Marceau to Miles Davis. 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 1982-83 the UCLA men's athletic program was judged the finest in the country and has now won the award for national all-around excellence four times in the last six years. The women's program captured the same honors in 1981-82 for the fifth consecutive time. 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 46 NCAA men's championships — second highest in the nation — including 15 in tennis, 11 in volleyball, and ten in basketball under the legendary John Wooden. You can participate on the varsity level in football, basketball, track, baseball, tennis, crew, volleyball, gymnastics, swimming, water polo, golf, soccer, and cross-country. For more information, contact the Men's Athletic Office at 825-3236.

**WOMEN'S INTERCOLLEGIATE SPORTS** — With ten 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 many national, regional, and conference titles, including the 1981-82 NCAA championship in softball and the 1981-82 and 1982-83 track and field crowns. Other nationally ranked teams are those in basketball, volleyball, swimming, tennis, cross-country, and gymnastics. Athletic grants-in-aid are available on a selective basis in most sports. For more information, contact the Women's Athletic Office at 206-6780.

**INTERCOLLEGIATE ATHLETIC FACILITIES** — UCLA's major indoor arena is the famed **Edwin W. Pauley Pavilion**, which seats 12,800 for UCLA basketball, volleyball, and gymnastics events. It will also be the site of the 1984 Summer Olympics gymnastics competition. Immediately adjacent, the **Elvin C. Drake Stadium** is the home of UCLA track and field competitions and site of many outdoor events including Commencement. The **Los Angeles Tennis Center**, a new 5,800-seat outdoor tennis stadium and clubhouse, is expected to be completed this academic year. Off-campus facilities include the **Jackie Robinson Stadium** for varsity baseball, the **Marina del Rey Boathouse** for the UCLA crew and sailing programs, and the renowned **Rose Bowl** in Pasadena, home of the UCLA football team.

## Athletics for Everyone

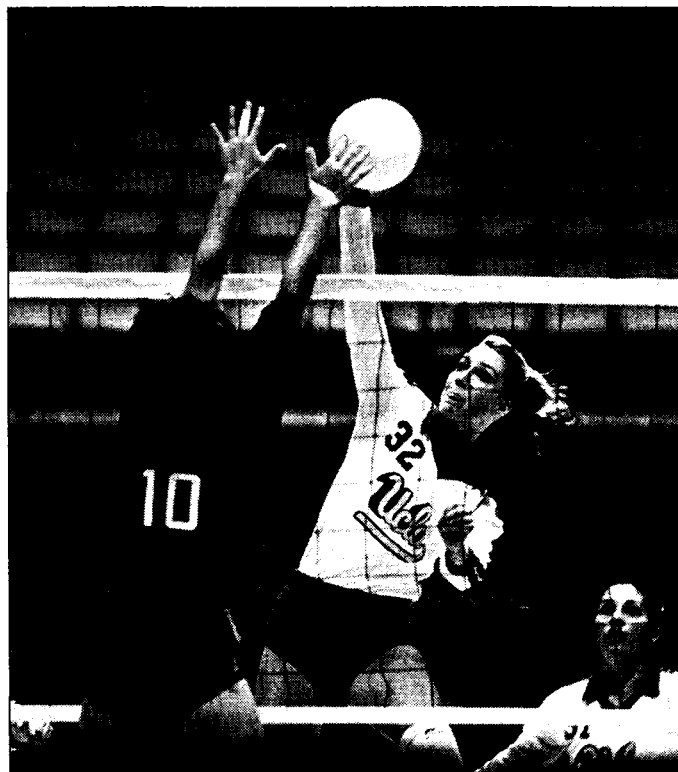
Whether you want to practice your favorite sport or learn a new one, you can do it all at UCLA. The extraordinary scope of athletic opportunities ranges from intercollegiate team play to a solitary jog around campus.

**INTRAMURALS** — Competitive intramural teams at UCLA are open to students, faculty, and staff. There are 55 activities in men's, women's, and coed competition, and many are divided into size or skill divisions so students at any level can get involved. For more information, contact the Intramural Sports Office in the John Wooden Center (825-3701).

**RECREATIONAL CLUBS AND CLASSES** — Recreational clubs are formed at UCLA to bring people interested in a particular sport or activity together. Through more than 40 different clubs with a combined membership of some 3,900 students, you can learn (and meet people who enjoy) bowling, flying, waterskiing, cricket, karate, sailing, or lacrosse, to name just a few. For club information, contact the University Recreation Association in the John Wooden Center (825-3701).

You'll also find a broad range of noncredit recreation classes in aquatics, boating and sailing, dance, fine arts, outdoor studies, physical fitness, and sports skills. For class information, contact the Recreation Instruction Program Office in the John Wooden Center (825-3701).

**RECREATION FACILITIES** — UCLA students have several major facilities in which to practice and play. The recently completed **John Wooden Recreation and Sports Center** is a comprehensive student activities building with several gymnasias, ten racquetball/handball courts, a weight training facility, and exercise and martial arts workout rooms. The **Sunset Canyon Recreation Center**, open seven days a week the year round, features an Olympic-sized swimming pool, a family pool, picnic-barbecue areas, multipurpose play fields, an outdoor amphitheater, and various meeting rooms and lounges. Students also have the use of Pauley Pavilion and Drake Stadium for recreational sports.



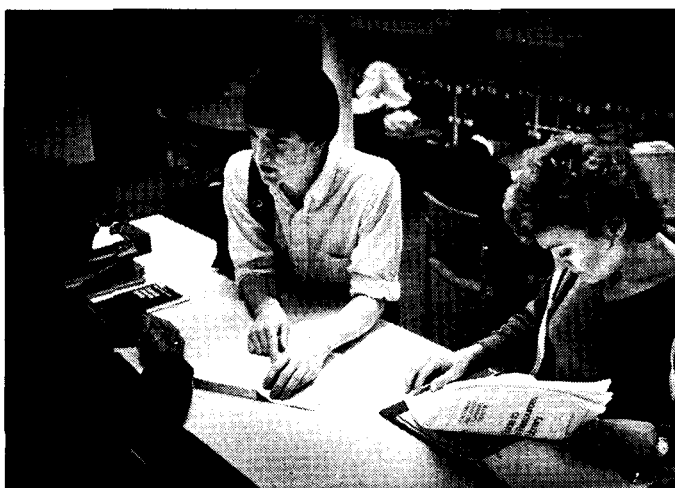
# Student Services

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 Chapter 2 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 guidance and placement services to all UCLA students. Services are located in the PCPC Building (825-2981) and in two satellite locations: 1349 GSM (specializing in management, 825-3325) and 5289 Boelter Hall (specializing in engineering and the physical sciences, 825-4606).

**Career Development** — A staff of career counselors assists you in career exploration and the job search. Information on planning further education and alternative careers is available in the Career Resources Library. In addition to bringing graduate school representatives to campus, the Campus Interview Program brings employer representatives to discuss career opportunities with seniors and graduate students, and career-related summer employment with continuing students. The direct referral service posts a large number of currently available jobs in a variety of organizations.

**Student Employment** — A job listing and referral system helps students and their spouses find part-time, temporary, or vacation employment. Career-related opportunities include internships and cooperative education possibilities.

**Educational Career Services** — This is a specialized source of information and counsel for students and alumni interested in university, college, and secondary and elementary school positions. Current lists of educational job opportunities, internships, and a professional file service are available.

## Student Health Service

The Student Health Service (SHS) is designed to offer the health care and information you may need as a UCLA student. Services are provided on campus at little or no cost to all registered students upon presentation of Registration and UCLA Student I.D. Cards. Additional information on all phases of SHS is available in the *UCLA Student Health Service* booklet produced by SHS, or by calling SHS information at 825-4073.

**Location and Hours** — General and emergency care is available in A2-130 Center for Health Sciences. Office hours are 8 a.m. to noon and 1 to 5 p.m. weekdays except Tuesday, when service begins at 9 a.m. Emergencies only, as determined by the staff, are seen from 11:30 a.m. to 1 p.m. and 4:30 to 5 p.m. Emergency care is also available for athletic injuries at Gate 10 in Pauley Pavilion (825-5704) from 1:30 to 6 p.m. weekdays. For emergency care when these facilities are closed, you may obtain treatment at the UCLA Hospital Emergency Room on a fee-for-service basis.

**Primary Care Clinics** provide outpatient diagnosis, treatment, and consultation for most general health care needs on a walk-in or appointment basis. Call 825-2463.

**Specialty Clinics** provide specialized care when you are referred by the Primary Care Clinics. Services include dermatology, orthopedics, surgery, gynecology, internal medicine, allergy, chest, ENT (ear, nose, and throat), ophthalmology, urology, and neurology. Routine physicals, health clearances, immunizations, and travel shots are available for a moderate fee. Call 825-1163.

**Women's Health Service** provides care for routine women's health needs and treatment of gynecological problems. Family planning (birth control) services are available, as are testing, counseling, and referrals for pregnancy. Counseling for sexual problems and relationship concerns is also provided. Call 825-0854.

**Men's Health Clinic**, the newest SHS service and the first of its kind in the UC system, treats genital and urinary problems, both sexual and nonsexual in nature. The clinic also provides sexual counseling for UCLA's male students. Call 825-0861.

**Dental Clinic** services are available by appointment without need of a referral. While the primary function of this clinic is to treat dental emergencies, a limited number of general dentistry and dental hygienic services are available. Fees are charged for all services. Call 825-5858.

**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 all aspects of health care. Call 825-4730.

**Supplemental Health Insurance** is recommended for all fully enrolled students because certain major expenses, including hospitalization, surgery, and emergency room costs, are not covered by the regular SHS program. The University requires, as a condition of registration, that foreign students attending UCLA on nonimmigrant visas have adequate health insurance, and it reserves the right to make the same requirement of all students.

A low-cost insurance policy is available for purchase at SHS at the beginning of each quarter. Students are not automatically enrolled in the plan nor is coverage automatically renewed. The deadline for purchasing insurance for Fall Quarter is **October 14**. For information on insurance available through SHS, call 825-1856.

## Student Psychological Services

Student Psychological Services offers short-term personal counsel and psychotherapy at two locations. The Mid-Campus Office is located in 4223 Math Sciences (Counseling Division, 825-0768; Behavioral Division, 825-4207); the South Campus Office is in A3-068 CHS (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 quarter. Appointments are made on weekdays between 8 a.m. and 5 p.m. Emergency counseling is also available.

## Helpline

Helpline (825-HELP) provides information, referrals, crisis intervention, and a friendly ear when you don't know where else to turn. It is open daily from 8 p.m. to midnight (1 a.m. on Friday and Saturday). For more information, contact the Dean of Students Office, 2224 Murphy Hall (825-3871).

## Ombudsman

The Ombudsman seeks to resolve personal grievances of any members of the campus community who feel they have been adversely affected by University policies, practices, and/or personalities. As an independent agent with investigatory powers, the Ombudsman serves as a trouble-shooter for students, faculty, and staff whose problems (including sexual harassment) have not been resolved by other campus agencies. For assistance, contact the Ombudsman in 274 Kinsey Hall (825-7627).

## Student Legal Services

If you are a registered student with a legal problem, you can get assistance free of charge 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 on a walk-in basis from 9 a.m. to 12:30 p.m. weekdays in 70 Dodd Hall (825-9894).

## Central Ticket Office

Tickets are available at two locations on the UCLA campus: the ticket office on the ground floor of the James E. West Center (825-2101) and the trailer at 650 Westwood Plaza (825-2953). Tickets for all UCLA events are sold at both locations. In addition, each location provides special ticket services as follows:

The West Center location offers student discount tickets to campus *athletic* events and local motion picture theaters. You may also purchase tickets to off-campus events through Ticketmaster, Ticketron, and the Mutual Ticket Agency, as well as student discount tickets for RTD buses and tokens for the Santa Monica bus system.

The 650 Westwood Plaza location offers student discount tickets for on-campus *cultural* events, subsidized by the Student Committee for the Arts (Registration and UCLA Student I.D. Cards must be shown). There is a limit of two tickets per person. Watch the *Daily Bruin* ads for ticket sale dates.

## Services for International Students

The **Office of International Students and Scholars (OISS)** works closely with the **International Student Center** to provide services and programs specifically for UCLA's 5,500 foreign students and postdoctoral scholars. Together they provide a comprehensive orientation program for these students which helps them to pursue their academic goals and share their viewpoints with American students and the community.

The OISS staff, located in 297 Dodd Hall (825-1681), includes professional and peer counselors especially prepared to assist with questions about immigration, employment, government regulations, financial aid, cross-cultural adjustment, and personal matters.

The International Student Center, 1023 Hilgard Avenue (208-4587), focuses on student-community relations and helps with language, housing, and other problems in addition to sponsoring cultural, educational, and social programs.

## Special Services/Veterans Affairs

The Special Services/Veterans Affairs Office, A255 Murphy Hall (825-1501), provides information for veterans and their dependents about V.A. educational benefits, tutorial assistance, and V.A. work-study and loan programs.

The office issues fee waivers to dependents of California veterans who are deceased or disabled because of service-connected injuries and who meet certain income restrictions, and certifies student status for recipients of Social Security benefits.

**Services for disabled and handicapped students** include assistance with registration and class enrollment, parking permits, fee deferments authorized by the California Department of Rehabilitation, readers for the blind, interpreters for the deaf, note takers, examination proctors, and minor wheelchair repairs. Ramps, elevators, and specially equipped rest rooms for the handicapped are provided in all campus buildings.

## Women's Resource Center

The Women's Resource Center, located in 2 Dodd Hall (825-3945), offers services to the entire campus community 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, 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. Internships are offered in areas such as creative writing, editing, legislative research, publicity, and program development.

The Women's Resource Center, committed to improving the status of women on campus, works with other campus agencies to help women reach their full potential.

## Child Care Services

The **Child Care Center** provides full- and part-time care for children aged two months to six years. Fees range from \$162 to \$330 per month depending on care. Some grants are available for eligible families. The center is located in Parking Lot 1 at 10833 Le Conte Avenue (825-5086).

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

The **UCLA Parent Toddler School** is open to children 18 months to three years of age. Tuition is on a sliding scale according to parents' income; participating parents must work at school one morning in every four that their child attends. The school, open 9 a.m. to noon weekdays, is located in the Family Student Housing complex four miles south of campus. For more information, call 391-9155 or 398-8739.

The **University Parents Cooperative Nursery School** offers a supportive educational environment to children of the UCLA community aged three to seven years. Hours are 9 a.m. to noon and/or noon to 3:45 p.m. weekdays, with extended care available until 5:30 p.m. The nursery school is located in the Family Student Housing complex (397-2735).

## Safety and Security

**Emergency: Campus Police** — If you need to call the Campus Police Department, just dial two digits — **35** — from any campus phone. For nonemergency information, contact them at 601 Westwood Plaza (825-1491).

**Escort Service** — The Department of Campus Community Safety provides free escort service every day of the year from dusk to 1 a.m. (2 a.m. during finals week). Uniformed escorts — specially trained UCLA students employed by the Campus Police — are available to walk students, faculty, and staff members between campus buildings and local living areas or Westwood Village. To obtain an escort, call 825-1493 about 20 minutes before you need one.

**Night Tram Service** — The night tram is a free shuttle that circles the campus approximately every 15 minutes from 5 p.m. to midnight (1 a.m. during finals week). It makes several stops including the residence halls and sorority row. For more information, contact the Escort Service (825-1493) or the Student Welfare Commissioner (825-7586).

**UCLA Rape Prevention and Education Services** are cosponsored by the Women's Resource Center and the Department of Community Safety. Services include workshops, self-defense classes, intake counseling, and referrals to offer women practical safety suggestions, increase physical and psychological preparedness, and heighten awareness of the complex issues of rape and sexual assault. For more information, call 206-8240 or 825-7661.

## Important Phone Numbers

|  |          |
|--|----------|
| UCLA Police Department (24 hours)        | 825-1491 |
| Police Emergency (from campus phones)    | dial 35  |
| UCLA Emergency Medical Center (24 hours) | 825-2111 |
| UCLA Escort Service (dusk to 1 a.m.)     | 825-1493 |
| Helpline (8 p.m. to midnight)            | 825-HELP |
| Crime Information (6 p.m. to 6 a.m.)     | 825-7661 |

## UCLA Alumni Association

The UCLA Alumni Association, celebrating its 50th anniversary in October 1984, serves to advance the University's interests and to benefit students and alumni. With some 45,000 members, it ranks among the six largest dues-paying alumni groups in the country. Students, graduates, parents, staff, and University Extension students are all eligible to join and serve on one of approximately 85 regional clubs, professional and school organizations, and student support and honorary clubs.

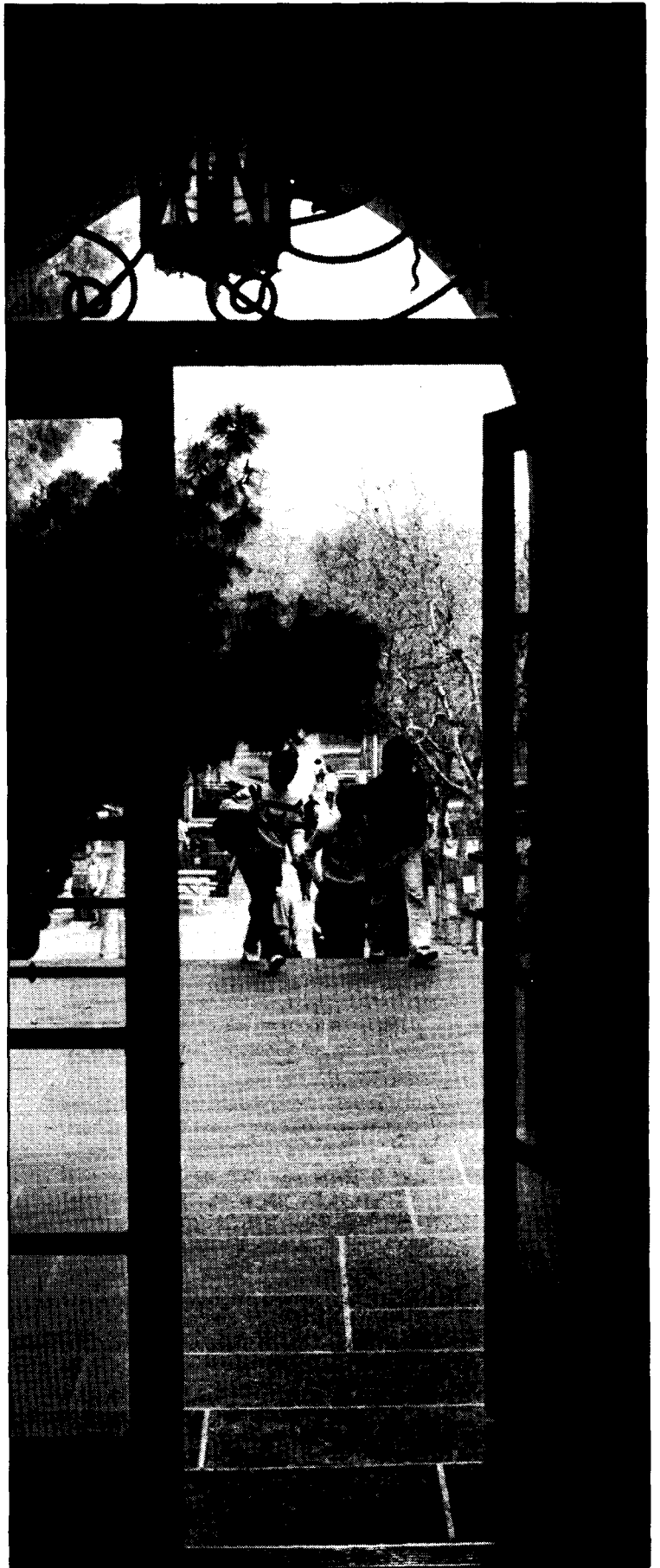
The Alumni Association awards scholarships to freshmen and continuing students each year; sponsors UCLA's Homecoming festivities and holds "Dinners for Twelve Strangers," which bring together students, alumni, and faculty; and supports student events such as the Chancellor's Freshman and Graduate Receptions, Spring Sing, and Mardi Gras. The Governmental Relations Program promotes constructive relations between the University and government officials. UCLA's Young Alumni organization serves the needs of recent graduates.

Benefits of Alumni Association membership include free library privileges as well as discounts on UCLA Fine Arts Productions, athletic events, group medical insurance, and travel programs. Graduating seniors who join receive special discounts on cap and gown rental, diploma lamination, graduation announcements, and an Extension class of their choice. The Alumni Association is located in the James E. West Center, 325 Westwood Plaza (825-3901).



# Undergraduate Study

# 2





# Undergraduate Admission

## Information:

Undergraduate Admissions and Relations with Schools  
1147 Murphy Hall  
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 schedules frequent student-guided individual and group tours of the campus which are both enjoyable and informative. Feel free to call the UARS Office at 825-8764 for tour information; 825-3101 for general admission information.

## Preparing for University Work

A carefully planned program of high school courses best prepares you for University work. It can give you a definite edge in your undergraduate studies and a head start in your chosen field. Most important, if you master certain basic subjects and skills in high school, you increase your chance of success at the University.

As a prospective UCLA student, you should give priority to completing the high school courses required for admission — the **A-F** pattern of courses listed later in this chapter. In addition, you should give careful thought to the general field of study, if not the specific major, you want to pursue. If you can make this decision early, you can take additional high school courses related to your field.

You should understand that the **A-F** requirements for admission are **minimum** entrance standards. Completing the required high school courses with satisfactory grades will not automatically prepare you for freshman work in every subject, much less in your major or program of study.

Good study habits and skills developed in the more advanced high school courses are essential for success at UCLA. University courses assume that you know how to read a textbook effectively, take notes, and plan a proper study schedule. Background material is expected to be thoroughly mastered.

To prepare for the demands of University work, you should take a full load of challenging, advanced courses in your senior year in high school. Since grades earned in academic courses beyond those required for admission are not used in determining your high school grade-point average, your chances for success at the University can be improved without jeopardizing your eligibility for admission.

**READING** — Many students are not prepared for either the kinds or amounts of reading demanded of freshmen at UCLA. You should become proficient in reading and understanding technical materials and scholarly works. Learn to read analytically and critically, questioning yourself about the author's intentions, viewpoint, arguments, and conclusions. Become familiar, and comfortable, with the conventions of standard written English and with various writing strategies and techniques. Your reading experience should include original works in their entirety, not just textbooks and anthologies, and should encompass a wide variety of forms and topics.

**WRITING** — Effective critical thinking and proficiency with the written language are skills which every UCLA student must master. By University standards, a student who is proficient in English composition is able to (1) understand the assigned topic; (2) select and develop a theme by

argument and example; (3) choose words which aptly and precisely convey the intended meaning; (4) construct effective sentences which economically convey the writer's ideas and display a variety of structures; (5) know the conventions of standard written English, avoiding sentence fragments, run-together sentences, faulty agreements, and improper pronoun references; and (6) punctuate, capitalize, and spell correctly.

If you plan to attend UCLA, you must take English courses in high school that require the development and practice of these skills. You must take at least four years of English composition and literature that stress expository writing: the development of persuasive critical thinking on the written page.

**MATHEMATICS** — Many students are unaware of the large number of fields that require advanced preparation in mathematics. Calculus courses are included in all majors in engineering and the physical, mathematical, and life sciences, as well as in programs leading to professional degrees in medicine, dentistry, optometry, and pharmacy. Moreover, many majors in the social sciences require statistics or calculus, and sometimes both.

If you select a major that includes statistics or calculus, you should expect to take that course during your freshman year at UCLA. You should prepare for such courses in high school. In addition to the two years of mathematics required for admission, you should take a second year of algebra and a year of precalculus mathematics. These courses should include (1) basic operations with numerical and algebraic functions; (2) operations with exponents and radicals; (3) linear equations and inequalities; (4) polynomials and polynomial equations; (5) functions and their graphs; (6) trigonometry, logarithms, and exponential functions; and (7) applications and word problems. Students who plan to enter a field which requires statistics should take at least the second year of algebra.

If you are not proficient in basic and intermediate algebra, you will have to take one or more precalculus courses before beginning calculus at UCLA and may also have to take preparatory courses before beginning statistics. These preparatory courses could seriously delay your undergraduate studies.

## Applying for Admission

The first step in applying for admission to UCLA is obtaining an *Undergraduate Application Packet* from your high school or community college counselor or from any University of California Admissions Office. The same application is used for applying to all UC campuses.

Complete the application, taking care to list the college or school you wish to attend at UCLA and your desired major. Then send the completed application, along with your personal essay and a \$35 nonrefundable application fee, to Undergraduate Admissions and Relations with Schools, 1147 Murphy Hall, University of California, Los Angeles, CA 90024.

Checks or money orders should be made payable to The Regents of the University of California. (If you have applied previously and were ineligible, or if you were admitted previously and did not register, you must file a new application for the quarter you want to attend and submit a new application fee.)

## Undergraduate Admission Checklist

- ☐ Obtain and complete the *Undergraduate Application Packet*, listing the UCLA college or school and major you prefer.
- ☐ Submit the Application Packet, along with a \$35 nonrefundable fee, to the UCLA Office of Undergraduate Admissions and Relations with Schools (UARS) as soon as possible after the filing period opens.
- ☐ Take the SAT or ACT examination as early as possible and have your scores sent to UARS.
- ☐ Request that official transcripts, including work in progress, be sent from your high school and any colleges you have attended to the UARS Office.

Next, if you are in high school when you apply (freshman applicant), request that your high school send an official transcript of work completed, as well as a separate list of courses in progress, to the UCLA Undergraduate Admissions and Relations with Schools Office. A final transcript, including a statement of graduation or proficiency, will be required later.

If you have attended or are attending another college when you apply (transfer applicant), request that transcripts of all your high school and college work be sent to UCLA. **It is your responsibility to arrange for transcripts and to assure that they arrive promptly; hand-carried transcripts are not acceptable for final evaluation.** Transcripts and other documents cannot be returned or forwarded to other institutions.

Finally, if you are a freshman applicant, you must also submit official results of the Scholastic Aptitude Test (SAT) or American College Test (ACT) and three achievement tests. See "Entrance Requirements" later in this chapter.

## When to Apply

The open or priority filing period for admission is as follows:

**Winter Quarter 1985: File July 1-31, 1984**  
**Spring Quarter 1985: File October 1-31, 1984**  
**Fall Quarter 1985: File November 1-30, 1984**

(Applications for admission to Fall Quarter 1984 would have had to be filed during November 1983.)

All applications received during the priority filing period will be accepted for consideration. After this period, however, some departments, colleges, or schools at UCLA may close to new applicants as enrollment targets are met. So, it is important to apply for admission during the open filing period. (Certain colleges, schools, and departments at UCLA accept applications for the Fall Quarter only. Check the appropriate school announcement or departmental listings for details.)

## Notification of Admission

You will be mailed a notice, which you should keep, acknowledging receipt of your application. Later, you will receive a letter explaining your admission status. The length of time before admission notification varies depending on how complete your application is and how quickly your records are received. In general, most Fall Quarter applicants are notified by spring.

If you are accepted for admission, you will be asked to sign and return a Statement of Intention to Register and a Statement of Legal Residence. A nonrefundable \$50 deposit, also required at this time, will be applied to your University registration fee if you register in the quarter to which you are admitted.

## Multiple Applications

You may file an application with **one UC campus only**. If you file for admission to more than one campus simultaneously, your application will not be processed until you notify Student Academic Services in Berkeley of your first choice. Fees submitted with multiple applications cannot be refunded.

## Redirection

The University of California guarantees a place in the UC system to every eligible applicant who files an application during the priority filing period. Therefore, when an undergraduate program or major has more qualified applicants than can be admitted, some students are "redirected" to other UC campuses. Test scores, grade-point average, and other information provided on your application are all considered in making redirection decisions.



## Entrance Requirements

All campuses of the University of California have the same undergraduate admission requirements. The requirements are based on two principles: (1) the best indicator of success in the University is a record of high grades in previous schoolwork; (2) the completion of certain academic courses in high school prepares you to begin University work and choose a general field of study.

Fulfilling the admission requirements, however, does not necessarily assure admission to the campus of your first choice. As noted above, some UC campuses with enrollment limits cannot admit everyone who meets the minimum requirements.

Note, too, that admission requirements vary for California residents and nonresidents. Since the University of California is partially state-funded, admission requirements are necessarily somewhat more restrictive for out-of-state applicants. The UC requirements are designed to admit nonresidents whose standing is in the upper half of those who would be eligible as residents. The term "resident" as used here should not be confused with the definition of legal residence for tuition purposes as defined in the Appendix.

## Admission as a Freshman (California Residents)

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). A high school diploma or proficiency certificate is required for admission to the University.

To qualify for admission as a freshman, you must meet three major requirements: **(1) the Subject Requirement, (2) the Scholarship Requirement, and (3) the Examination Requirement.** You may also qualify for admission by examination alone.

### (1) Subject Requirement

The following subject pattern, called the **A through F subjects**, is required for admission to UCLA. You must have earned a grade of C (2.0 grade-point average) or higher in each semester of each course.

#### (A) History — 1 Year

A one-year course in United States history, or one-half year of United States history and one-half year of civics or American government.

#### (B) English — 4 Years

University preparatory courses in English composition and/or literature with no more than one year taken in the ninth grade.

#### (C) Mathematics — 2 Years\*

University preparatory courses in such subjects as algebra, geometry, trigonometry, calculus, elementary functions, and mathematical analysis.

#### (D) Laboratory Science — 1 Year, completed after the ninth grade

A one-year course in one laboratory science.

#### (E) Foreign Language — 2 Years

Two years in one language. Any foreign language with a written literature is acceptable.

#### (F) Advanced Course — 1 or 2 Years\*

This must be selected from one of the following:

**Mathematics** — A total of one year of mathematics beyond the two years offered toward the mathematics requirement.

**Foreign Language** — Either an additional year in the same language offered toward the foreign language requirement or two years of another foreign language.

**Science** — A year course in laboratory science taken after the one-year science requirement is completed.

These courses constitute the **minimum** subject requirements for admission, but it is strongly recommended that you take additional courses. See "Preparing for University Work" at the beginning of this chapter.

### (2) Scholarship Requirement

Eligibility for admission to UCLA is based on a combination of your grade-point average (GPA) in the A-F subjects and your American College Test (ACT) or Scholastic Aptitude Test (SAT) scores. For detailed scholarship requirements, see the *Undergraduate Application Packet* or contact Undergraduate Admissions and Relations with Schools.

\*For students who graduate from high school in June 1986 or later, the following changes will be in effect: the Mathematics (C) requirement will increase from two to three years, and the Advanced Course (F) requirement will be four units of college preparatory courses in at least two of the following areas: history, English, advanced mathematics, laboratory science, foreign languages, social science, fine arts. Moreover, students will be required to complete a minimum of 16 high school units in grades nine through twelve. Fifteen of those must be academic or college preparatory units, and seven of the academic units must be completed in the last two years of high school. For more information on these new requirements, see your high school counselor.

### (3) Examination Requirement

All freshman applicants must submit scores from the following tests:

#### (a) One Aptitude Test:

- (1) The American College Test (ACT), composite score, OR
- (2) The Scholastic Aptitude Test (SAT), total score.

#### (b) Three College Board Achievement Tests which must include:

- (1) English composition AND
- (2) Mathematics, level 1 or 2, AND
- (3) Either English literature, foreign languages, sciences, or social sciences.

If you are applying for admission to the Fall Quarter, you should take these tests by December of your senior year in high school. **Do not wait to apply for admission until you have taken the tests;** apply as soon as possible after the priority filing period opens (see "When to Apply" earlier in this chapter).

For detailed information about these requirements, consult the *Undergraduate Admissions Circular* or the *Undergraduate Application Packet*, available in the Undergraduate Admissions Office at any UC campus and in high schools and community colleges.

### Admission by Examination Alone

If you do not meet the subject and scholarship requirements for admission, you may be able to qualify for admission to the University by examination alone. To qualify, you must score at least 1100 on the Scholastic Aptitude Test (SAT) or 26 on the American College Test (ACT). In addition, your total score on the three College Board Achievement Tests must be 1650 or higher, with a minimum score of 500 on each test.

You cannot qualify by examination alone if you completed 12 or more units of transferable college credit before taking the tests. Also, you cannot qualify if you have taken transferable college courses in one or more of the academic subjects covered by the College Board Achievement Tests.

## Admission as a Freshman (Nonresidents)

Admissions procedures and examination requirements are the same as for California residents as described above. For nonresident freshmen, however, the minimum required grade-point average for A-F courses in high school is 3.4. Admission by examination alone requires the same total score of 26 on the ACT or 1100 on the SAT, but a higher total score on the three Achievement Tests (1730 or higher, with a minimum score of 500 on each test).

If you do not meet the requirements for admission to freshman standing or if you cannot qualify by examination alone, you may still gain admission as a transfer student.

## Admission as a Transfer Student (California Residents)

A transfer applicant has been a registered student (1) at another college or university or (2) in college-level extension courses other than summer session immediately following high school graduation. You **may not disregard** your college record and apply for admission as a freshman.

Requirements for admission as a transfer student vary depending on your high school record and the date of your high school graduation, though a GPA of 2.0 or better is usually required in transferable courses. If you wish to transfer to UCLA, you should follow these general guidelines:

- (1) See your college counselor, who can help you identify the courses you should take to prepare for your intended major, and make certain the courses you are currently taking are transferable.

(2) Take as many English and mathematics courses as possible. UCLA's academic program is rigorous and requires a strong background in both critical and quantitative skills. English and mathematics are the most important subjects you can take.

(3) Begin to satisfy breadth (general education) requirements and fulfill prerequisites for your intended major. Because a sound liberal arts education encompasses more than an in-depth knowledge of one field, most colleges and schools at UCLA require that students take coursework in areas outside their major. Before transferring to UCLA, you can take courses to satisfy these breadth requirements as well as fulfill some of the required "prerequisite" courses for your major.

For more detailed information on admission requirements for transfer students, see the *Undergraduate Application Packet* or contact UARS.

## Admission as a Transfer Student (Nonresidents)

If you were eligible for freshman admission as a nonresident and want to apply as a transfer student, you must have a GPA of 2.8 or higher in transferable college courses. If you graduated from high school with less than a 3.4 GPA in the A-F subjects required for freshman admission, you must have completed at least 84 quarter units (56 semester units) of transferable work with a GPA of 2.8 or higher. If you lacked any of the required A-F subjects, you must also complete the appropriate college courses.

## Transfer Credit and Credit by Examination

The University gives 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).

Many students who plan to earn a University degree find it to their advantage to complete their freshman and sophomore work at a California community college. Each college offers a full program of courses approved for transfer. You may earn 105 quarter units (70 semester units) toward a University degree at an accredited two-year college. If you earn more than that, you will receive subject credit for the additional courses, but no more than 105 quarter units may be applied toward your degree. Individual colleges and schools may impose additional credit limitations.

Extension courses taken either at UCLA or at another institution may not be acceptable for credit. UCLA Extension courses in the X and XL series are transferable for unit credit and some subject credit. For more information, contact the Extension Advisory Service at 206-6201.

College credit for examinations given by national testing services is generally not allowed, except for the Advanced Placement examinations given by the College Board. 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 priority filing period opens** (see "When to Apply" at the beginning of this chapter). 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 will be required to pass the English as a Second Language Placement Examination (ESLPE) given by the University. 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 writing to the Educational Testing Service, 1947 Center Street, Berkeley, CA 94704. Have your test results sent directly to the UCLA Office of Undergraduate Admissions and Relations with Schools.

All new and reentering foreign students must obtain clearance in person at the Student Health Service by completing and returning a Health Evaluation form, by verifying adequate health insurance coverage, and by establishing absence of active tuberculosis. In addition, all foreign students must obtain an annual health insurance clearance each fall at the SHS Insurance Office. For information, call 825-4073.

## Readmission

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

If you are absent for two or more consecutive quarters, you must file an application for readmission with the Registrar. During the 1984-85 academic year, all such students returning in the same standing (undergraduate) must file applications for readmission as follows:

### Filing Deadlines

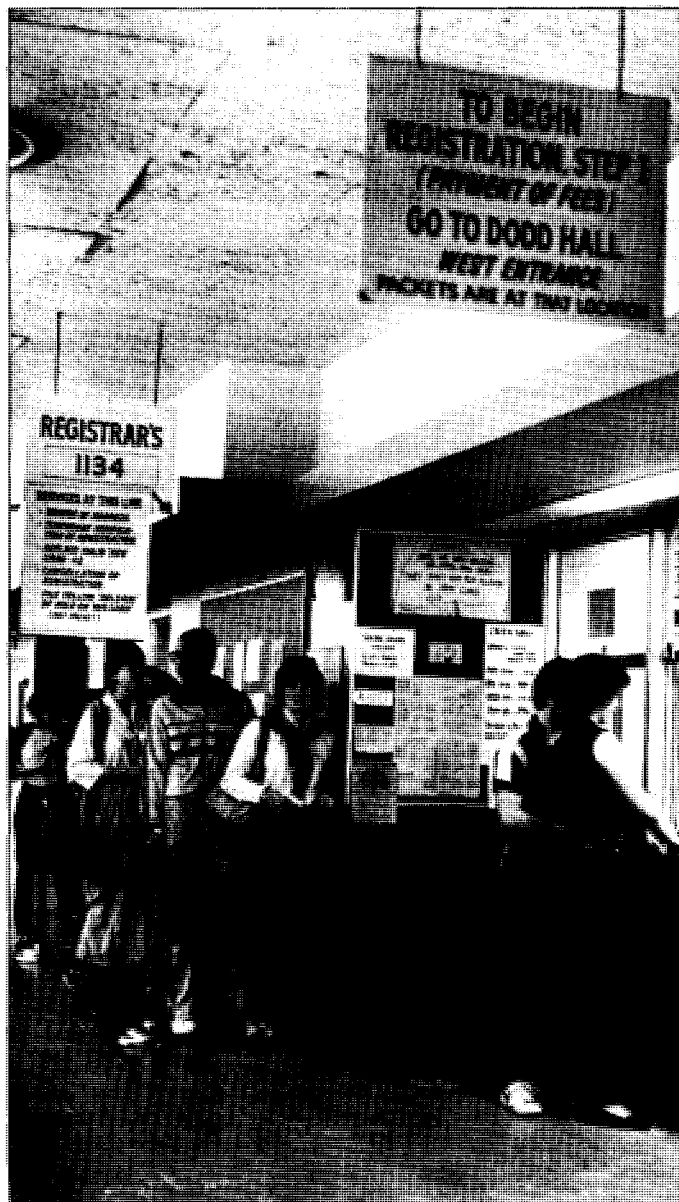
August 1 for Fall Quarter 1984  
November 15 for Winter Quarter 1985  
February 15 for Spring Quarter 1985

Applications are available at the Registrar's Office, 1134 Murphy Hall. Your completed application must be accompanied by a \$35 application fee (nonrefundable) and transcripts of records from any other institutions (including University Extension) you attended during your absence. Within enrollment limitations, 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 applications for readmission are filed on time. Contact the Registrar's Office (825-1091) for further information on readmission.

# Registration and Enrollment

Information:  
Registrar's Office  
1134 Murphy Hall  
825-1091, 825-3801

Detailed information on registration 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 quarter. To obtain a copy by mail, write to ASUCLA Students' Store, 308 Westwood Plaza, Los Angeles, CA 90024, Attn: Mail Out. Include a check or money order for \$1.50 payable to ASUCLA.



Registration consists of paying fees and enrolling in classes. The registration packet, issued by the Registrar, contains cards for paying fees and a Study List Card for requesting enrollment in classes. You must complete and return the cards by the established deadlines to be officially registered and enrolled for the quarter.

Registration may be accomplished by mail or in person. You may use a combination of both processes to pay fees and enroll in classes, but **all eligible students are encouraged to register by mail**. It will save you the time and trouble of waiting in line.

## Last Mailing Dates to Register and Enroll by Mail

(Tentative only; refer to the *Schedule of Classes* for firm dates)

**August 31 for Fall Quarter 1984**  
**December 7 for Winter Quarter 1985**  
**March 6 for Spring Quarter 1985**

You may register in person on certain days immediately preceding the beginning of classes each quarter. Hours are 8:30 a.m. to 5 p.m. on the following days:

## Registration in Person

**September 24-28 for Fall Quarter 1984**  
**January 2-4 for Winter Quarter 1985**  
**March 27-29 for Spring Quarter 1985**

## 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 a Major" and "Planning a Program" later in this chapter).

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.

Enrolling in classes, like paying fees, is accomplished most effectively and most easily by mail. Because enrollment by mail is processed according to a postmarked date, you will increase your chances of getting the classes you want if you send your Study List Card to the Registrar's Office on the first mailing date. Consult the *Schedule of Classes* for firm dates and for all details on enrollment procedures.

## Study List Changes

Tentative Study Lists showing enrollment results are mailed to each student ten days before the term begins. Before the first day of class, you may make program changes (add/drop courses, switch sections, or change grading options) by keeping the appointment to enroll which is printed on your Tentative Study List. Once instruction begins, and **through the tenth day (second week) of classes**, you may make as

## Financial Support

Information:  
Financial Aid Office  
A107 Murphy Hall  
206-0432

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 your high school counselor or from the Financial Aid Office, A107 Murphy Hall, University of California, Los Angeles, CA 90024.

## Applying for Financial Aid

The deadline for filing all undergraduate financial aid applications for academic year 1985-86 is **early February 1985** (applications for 1984-85 would have had to be filed by February 1984). 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 Application for Undergraduate Admission during the priority filing period (see "Undergraduate Admission" at the beginning of this chapter). On the application, check the boxes requesting financial aid and scholarship application materials. The Financial Aid Office will send you complete instructions and applications well before the deadline.

Continuing students may obtain UCLA Scholarship and Financial Aid Application Packets at the Financial Aid Office in December of each year. Continuing students from foreign countries may obtain a Financial Aid Application for International Students at the Financial Aid Counseling Window, A107 Murphy Hall. No financial aid can be awarded to foreign students in their first year of attendance at UCLA.





## Student Aid Application for California (SAAC)

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 Student Aid Application for California (SAAC). If you are financially independent, your own financial circumstances are analyzed rather than those of your parents (see the *Financial Aid Handbook* for the definition of financial independence).

The SAAC is used to apply for Pell Grants, funds administered by UCLA, and Cal Grants administered by the California Student Aid Commission. It is available at California high schools and colleges and the UCLA Financial Aid Office, and should be filed in early February with the College Scholarship Service, P.O. Box 70, Berkeley, CA 94701. Be sure to indicate that a report is to be sent to UCLA.

## Kinds of Financial Aid

There are four basic kinds 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 money that is a gift (scholarship or grant) and some that will have to be paid back or worked for. If you indicate a preference for work or loan, we will attempt to honor it.

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 and department.

## Scholarships

Scholarships are gifts that do not have to be repaid. Undergraduate scholarships at UCLA honor outstanding past achievement and make possible greater academic excellence in the future. UCLA administers about 100 different scholarship funds which are either honorary or need-based.

Honorary scholarships come with a small honorarium (usually \$300) and are awarded solely on the basis of academic performance and promise. No financial information is required. Need-based scholarships, which often carry substantial yearly stipends, are given to students who demonstrate financial need as well as high academic performance. For eligibility requirements, read the scholarship instructions sent to all financial aid applicants.

All scholarships require annual reapplication. To maintain eligibility, you must carry at least 12 units per quarter.

### Regents Scholarships

One of the highest honors that may be conferred upon 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 entering or continuing juniors. You are eligible to apply if you have achieved an outstanding academic record (minimum 3.5 GPA) and show a high degree of promise. Financial need is not a criterion for this award but if you are eligible for financial assistance and have filed the SAAC, you may receive a stipend to cover the difference between your resources and the cost of your UCLA education. Regents Scholars receive an honorarium of \$300 regardless of need.

### National Merit Scholarships

UCLA sponsors National Merit Scholarships for entering freshmen who are finalists in the National Merit Scholarship competition. Beginning in Fall Quarter 1984, finalists who select UCLA as their first choice will be offered a minimum of \$750 in recognition of their academic achievement.

### UCLA Alumni Association Scholarships

Alumni Scholarships are available to California high school graduates who will be UCLA freshmen in the Fall Quarter. No financial need is involved, but you must show academic promise. Alumni Scholarships are

merit-based and competitively awarded. Amounts for 1984-85 range from \$1,000 to \$10,000. The Ralph Bunche Scholarship, also awarded by the UCLA Alumni Association and named in honor of the Nobel Peace Prize laureate and UCLA alumnus, is awarded to students who meet the University's Student Affirmative Action definition.

## Prizes

The generosity of alumni and friends of the University provides for competitive prizes and awards in several fields. Selections are made by committees in appropriate academic departments. See your departmental adviser for details.

## Grants

Grants are gifts that do not have to be repaid and are based solely on need. Whenever guidelines and funds permit, your financial aid package will include a grant.

### Pell Grants

Pell Grants are federal aid programs 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 1984-85 range from \$250 to \$1,900 and are determined by your own and your family's financial resources. U.S. citizens, permanent residents, and refugees are eligible to apply by filing the SAAC. The University requires all eligible undergraduates to apply for a 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 1984 are eligible to apply for a California Student Aid Commission Cal Grant award. The SAAC and Cal Grant Supplements are the official applications for these programs. "Cal Grant A" awards are applied toward education and 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 with amounts from \$300 to \$2,182 and are renewable annually. The state sends renewal applications to continuing Cal Grant recipients.

### Grants-in-Aid

Grants-in-Aid provide eligible students with financial assistance from University funds. Awards range from \$100 to \$5,010. All students may apply.

### Supplemental Educational Opportunity Grants

These awards are federally funded and are granted only to undergraduates with financial need. Awards range from \$200 to \$1,500.

## Loans

Loans allow you to postpone paying some of the costs of your education until you have completed school. A financial aid offer almost always includes a long-term, low-interest loan. The loans come from revolving funds; most repayments are immediately reloaned to current students.

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. If you are a first-time borrower, schedule an appointment with a financial aid counselor. 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 inter-

view, the University will place a hold on your academic records and registration materials. Call 825-9864 for an interview appointment before graduating, transferring, or withdrawing from UCLA.

### National Direct Student Loans (NDSL)

These low-interest loans are available to all students who are U.S. citizens, permanent residents, or refugees and who are carrying at least one-half the full-time academic workload. Repayment begins nine months after you terminate at least half-time study. Minimum repayment is \$90 per quarter, including interest, for a maximum of ten years.

### Nursing Loans

To be eligible for a nursing loan, you must be a U.S. citizen, permanent resident, or refugee and a student in the School of Nursing. Up to \$2,500 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 \$75 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 at the Student Loan Services Office, A227 Murphy Hall.

### Guaranteed Student Loans (GSL)

Federal and California Guaranteed Student Loans are long-term budget-based loans made by banks, savings and loan associations, and credit unions. They are available to U.S. citizens, permanent residents, or refugees who are enrolled in at least a half-time program at UCLA. You

should check with various lending institutions to determine their particular loan policies, but the Financial Aid Office must process applications before you submit them to a lending institution. Applications are available at the Financial Aid GSL Office, A128 Murphy Hall.

Repayment of the GSL begins six to nine months after graduation or withdrawal and continues for a maximum of ten years. If you receive a federal or state interest subsidy, the loan is interest-free while you are a student and for six to nine months thereafter. Undergraduates may borrow \$2,500 per academic year up to a total of \$12,500. GSL processing takes approximately ten to twelve weeks.

### 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 and 40 hours per week during breaks. An academic year's work-study award may range from \$600 to \$5,200, but your gross earnings may not exceed the amount awarded to you. There are two basic work-study programs available.

Under **College 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, permanent resident, or a refugee.

The **President's Work-Study** program is administered in the same manner as College Work-Study except that The Regents of the University and your employer provide funding, and you are limited to on-campus jobs. All students are eligible to apply.



# Undergraduate Majors and Degrees

| MAJORS  | DEGREES | OTHER  |
|---|---------|--|
| <b>College of Letters and Science</b>                   |         |  |
| African Studies .....                                   | —       | Special Program (taken jointly with an organized major)          |
| Afro-American Studies .....                             | B.A.    |  |
| Anthropology .....                                      | B.A.    |  |
| Asian American Studies .....                            | —       | Special Program (taken jointly with an organized major)          |
| Astronomy .....   | B.S.    |  |
| Atmospheric Sciences .....                              | B.S.    |  |
| 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.    |  |
| Chicano Studies .....                                   | B.A.    |  |
| Classics .....  | B.A.    |  |
| Classical Civilization .....                            | B.A.    |  |
| Greek .....   | B.A.    |  |
| Latin .....   | B.A.    |  |
| English/Greek .....                                     | B.A.    |  |
| English/Latin .....                                     | B.A.    |  |
| Communication Studies .....                             | B.A.    |  |
| Computing, Program in .....                             | —       | Program (taken jointly with an organized major)                  |
| Cybernetics .....                                       | B.S.    |  |
| Diversified Liberal Arts .....                          | —       | Certificate Program (taken jointly with an organized major)      |
| Earth and Space Sciences                                |         |  |
| Geology .....   | B.S.    |  |
| Geology (Engineering Geology) .....                     | B.S.    |  |
| Geology (Geochemistry) .....                            | B.S.    |  |
| Geology (Nonrenewable Natural Resources) .....          | 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.    |  |
| Economics/Business .....                                | B.A.    |  |
| Economics/International Area Studies .....              | B.A.    |  |
| Economics/System Science .....                          | B.S.    |  |
| English .....   | B.A.    |  |
| French .....  | B.A.    |  |
| French and Linguistics .....                            | B.A.    |  |
| Geography .....   | B.A.    |  |
| Geography/Ecosystems .....                              | B.A.    |  |
| Germanic Languages                                      |         |  |
| German .....  | B.A.    |  |
| Scandinavian Languages .....                            | B.A.    |  |
| History .....   | B.A.    |  |
| International Relations .....                           | —       | Special Program (taken jointly with the Political Science major) |
| Italian .....   | B.A.    |  |
| Italian and Special Fields .....                        | B.A.    |  |
| Kinesiology .....                                       | B.S.    |  |
| Latin American Studies .....                            | B.A.    |  |
| Law and Society .....                                   | —       | Special Program (taken jointly with the Political Science major) |
| Linguistics .....                                       | B.A.    |  |
| African Languages .....                                 | B.A.    |  |
| Linguistics and Computer Science .....                  | B.A.    |  |
| Linguistics and East Asian Languages and Cultures ..... | B.A.    |  |
| Linguistics and English .....                           | B.A.    |  |

| MAJORS  | DEGREES | OTHER   |
|---|---------|---|
| 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.A.    |   |
| Applied Mathematics .....                     | B.S.    |   |
| Mathematics/Applied Science .....             | B.A.    |   |
| Mathematics/Computer Science .....            | B.S.    |   |
| Mathematics/System Science .....              | B.S.    |   |
| Microbiology .....                            | B.A.    |   |
| Near Eastern Languages and Cultures           |         |   |
| Ancient Near Eastern Civilizations .....      | B.A.    |   |
| Arabic .....                                  | B.A.    |   |
| Hebrew .....                                  | B.A.    |   |
| Jewish Studies .....                          | B.A.    |   |
| Near Eastern Studies .....                    | B.A.    |   |
| Philosophy .....                              | B.A.    |   |
| Physics .....                                 | B.S.    |   |
| General Physics .....                         | B.A.    |   |
| Political Science .....                       | B.A.    |   |
| Psychology .....                              | B.A.    |   |
| Psychobiology .....                           | B.S.    |   |
| Quantitative Psychology .....                 | B.A.    |   |
| Religion, Study of .....                      | B.A.    |   |
| Slavic Languages and Literatures .....        | B.A.    |   |
| Russian Civilization .....                    | B.A.    |   |
| Russian Linguistics .....                     | B.A.    |   |
| Sociology .....                               | B.A.    |   |
| Spanish and Portuguese                        |         |   |
| Portuguese .....                              | B.A.    |   |
| Spanish .....                                 | B.A.    |   |
| Spanish and Linguistics .....                 | B.A.    |   |
| Urban Studies or Organizational Studies ..... | —       | Special Program (taken jointly with an organized major) |
| Women's Studies .....                         | —       | Special Program (taken jointly with an organized major) |

### College of Fine Arts

|                                 |      |
|---------------------------------|------|
| Art, Design, and Art History    |      |
| Art .....                       | B.A. |
| Art History .....               | B.A. |
| Design .....                    | B.A. |
| Dance .....                     | B.A. |
| Ethnic Arts .....               | B.A. |
| Music .....                     | B.A. |
| Theater Arts                    |      |
| Motion Picture/Television ..... | B.A. |
| Theater .....                   | B.A. |

### School of Engineering and Applied Science

|  |      |
|--|------|
| Chemical Engineering .....             | B.S. |
| Civil Engineering .....                | B.S. |
| Computer Science and Engineering ..... | B.S. |
| Electrical Engineering .....           | B.S. |
| Engineering .....                      | B.S. |

### School of Nursing

|               |      |
|---------------|------|
| Nursing ..... | B.S. |
|---------------|------|

# Getting Your Bachelor's Degree

## Colleges and Schools

The UCLA campus consists of 13 colleges and schools, most of which are subdivided into departments. The courses of instruction are administered within the departments.

**Colleges** at UCLA provide a broad, nonprofessionally oriented curriculum leading to both undergraduate and graduate degrees. UCLA has two colleges: the College of Letters and Science and the College of Fine Arts.

**Schools** provide training for specific professions and are authorized to grant professional degrees (e.g., Master of Business Administration, Master of Engineering, Doctor of Education). UCLA has 11 professional schools, two of which offer undergraduate degree programs: the School of Engineering and Applied Science and the School of Nursing.

Each of the colleges and schools 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.

As the chart on the previous pages shows, UCLA offers Bachelor of Arts (B.A.) and Bachelor of Science (B.S.) degrees in a broad range of disciplines. The bachelor's degree 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 stay informed of rules, regulations, and policies affecting your life as a UCLA student and your academic standing, and to comply with them. 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 will possibly 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 and enter UCLA as "undeclared."

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 and, with careful planning, several of these courses may apply toward fulfilling college requirements for whatever major you choose.

To further narrow your choices, carefully consider general college or school 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 with advisers in the Placement and Career Planning Center.

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

In addition, each UCLA undergraduate is limited to between 208 and 213 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. Working with a tentative major in mind, you need to plan courses to satisfy each of the four levels of degree requirements while staying within the minimum and maximum number of units required for graduation. The Orientation program for new students will take you through the step-by-step process of planning an effective program (see "Orientation" later in this chapter). If you cannot attend Orientation, see your college or school adviser or, if you have chosen 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 coursework for the bachelor's degree at UCLA. A maximum of 208 units is allowed. (If you have credit for English 1 taken Fall Quarter 1979 through Summer Quarter 1984 at UCLA, the minimum and maximum unit requirements are increased to 182 and 210 respectively.) In the School of Engineering and Applied Science, the minimum units allowed are between 185 and 190 (depending on the department program); 213 maximum units are allowed.

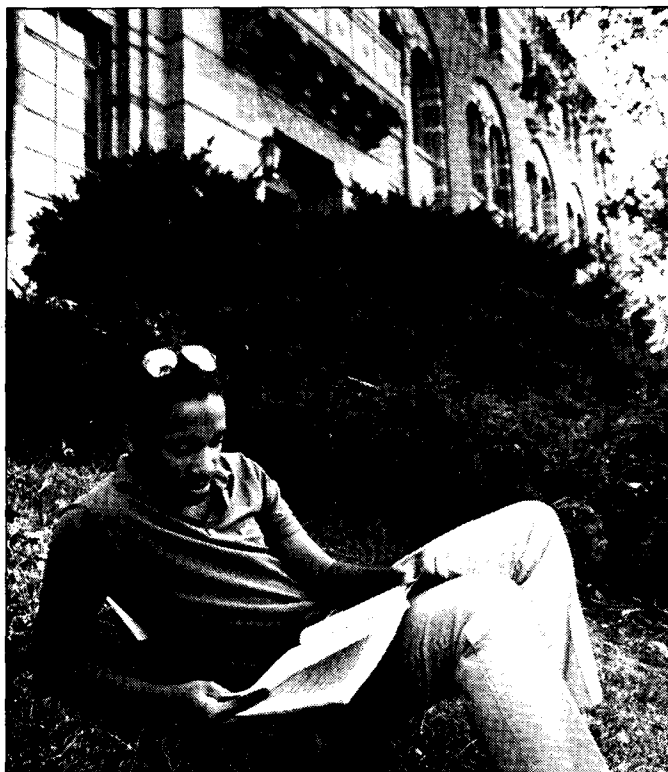
In working toward a bachelor's degree, you should be aware that there are four levels on which you must satisfy requirements. The first level consists of Universitywide requirements which all undergraduates must satisfy; the rest vary depending on your major and the college or school which offers it.

- (1) University requirements (Subject A, and American History and Institutions);
- (2) College or school requirements (e.g., credit and scholarship, English composition, breadth requirements);

(3) Departmental requirements (courses in preparation for the major);

(4) Major requirements (courses in satisfaction of the major).

University requirements are described below. Turn to "Requirements for the Bachelor's Degree" in the appropriate school or college chapter for a description of level 2 requirements, and then to the individual departments within each college and school for level 3 and 4 requirements.



## University Requirements

The University of California has established two requirements which all undergraduates must satisfy in order to graduate: Subject A, 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 in your first quarter of residence. You may meet this requirement by:

- (1) Scoring 3, 4, or 5 on the College Entrance Examination Board (CEEB) Advanced Placement Test in English, OR
- (2) Scoring 600 or better on the CEEB Achievement Test in English Composition, OR
- (3) Presenting transfer credit for an acceptable college-level course in English composition at another institution, OR
- (4) Passing a Subject A Placement Test required of all students who have not otherwise met the requirement.

If you do not meet the requirement in one of the ways described above, during your first quarter of residence at UCLA you must enroll in either English A or English 1A (determined by performance on the Subject A Placement Test). Effective Fall Quarter 1984, 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 in your next quarter

of residence. You will not receive credit for any English course (except English A or 1A) unless the Subject A requirement is satisfied.

Students whose native language is not English will be required to take the English as a Second Language Placement Examination (ESLPE). These students are exempt from the Subject A examination, but must take the ESLPE and may have to complete one or more courses in the English as a Second Language 33A through 33C series.

### 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 United States 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) Successfully 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:

Economics 183

English 80, 85, M104, 115A, 170, 171, 172, 173, 174

Geography 136

History 6A, 6B, 6C, 7A, 7B, 145A, 145B, 146A, 146B, 147A, 147B, 148A, 148B, 148C, 149A, 149B, 150A, 150B, 150C, 151A, 151B, 152A, 152B, 153, 154A, 154B, 154C, 154D, 155A, 155B, 156A, 156B, 156C, 156D, 156E, 157A, 157B, 157C, 158A, 158B, 158C, 158D, 158E, M159A, M159B, 160, 161, 162, 163

Political Science 1, 70, 114A, 114B, 143, 144, 145, 172A, 172B, 180, 186

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

- (3) Presenting a certificate of satisfaction of the present California requirement as administered at another college institution within the state.

Candidates for a teaching credential, but not for a degree, must take one of the following courses: History 7A, 7B, 151A, 151B, Political Science 172A, or 172B.

Aliens attending the University on an F-1 or J-1 student visa may petition for exemption from this requirement by showing proof of temporary residence in the United States.

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

### Course Credit and Minimum Scholarship

In acceptable courses, the grades A through C and Passed denote satisfactory progress toward the bachelor's degree. The grades C- through D- yield unit credit toward the degree but 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. Failure to maintain this level normally results in probation.

### Academic Probation

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

You may terminate probation at the end of a regular quarter 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 quarters, you may be dismissed from the University.



## 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 quarter is less than 1.5, OR
- (2) If you do not earn at least a C (2.0) average in any quarter when you are on probation, OR
- (3) If you do not end probation within two quarters.

Note: In some colleges and schools, you may be subject to dismissal for failing to meet minimum progress requirements. Check with your college or school counselor.

If you are subject to dismissal, your transcript will carry the notation "Academic Probation, Continuance Subject to Dean's Approval." To avoid automatic dismissal, you should immediately make an appointment with your college or school counselor. Your individual situation, attitudes, and goals will be taken into account and a decision made as to whether you will be allowed to continue on probation (with certain conditions) or be dismissed.

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 chapter).

## Progress Toward the Bachelor's Degree

UCLA is a full-time educational institution, and students are expected to complete their undergraduate degree requirements and graduate within four years. Maintaining the recommended study load will enhance your learning experience and the coherence of your studies.

The normal program for undergraduate students is three to four courses (12 to 16 units) per quarter. Some colleges or schools may enforce minimum enrollment or minimum progress regulations. Please read the degree requirements section under each college and school for specific Study List limits. See Chapter 4 for information on concurrent enrollment, credit by examination and credit from other institutions, and special studies (199) course limitations.



# Academic Resources and Assistance

## 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 Chapter 1 of this catalog.

### 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 colleges, schools, and research centers on campus to support new academic programs and courses. Many of these courses are on socially important issues which, because they are new, are unavailable in existing academic departments. Many involve nontraditional educational concepts, interdisciplinary topics, and subjects on the leading edge of faculty interest.

One of these is the program in **Medicine, Law, and Human Values**, which offers interdisciplinary courses and seminars on both the undergraduate and graduate levels. 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 (825-5467).

### Education at Home Program

Students interested in early American history and culture have the opportunity to spend Winter Quarter 1985 "on location" in three Eastern cities. The Education at Home Program, conducted through the UC Riverside campus, is open to undergraduates from any campus in the UC system.

Those selected for participation spend nine weeks in Williamsburg, one in Philadelphia, and a concluding week in Washington, D.C. Formal instruction consists of three American history courses (four units each) comprising classroom work and field trips to places of historical interest. For further information, brochures, or applications, write to the Education at Home Program, Department of History, University of California, Riverside, CA 92521, or call (714) 787-3820. (See Chapter 1 for details on the **Education Abroad Program**, available to both graduate and undergraduate students.)

### 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 Office, A213 Ackerman Union (825-0831).

**Government Internship Program** — More than 2,500 UCLA students have learned about the inner workings of government while serving in this program, the largest of its kind in any university in the nation. Bruins serve part-time or full-time internships for one or more quarters on the staffs of elected officials, public interest groups, and government agencies in Los Angeles, Sacramento, Washington, and overseas. Others are participating in business, banking, and the arts in New York and San Francisco. Full-time positions carry a small stipend.

**International Opportunity Counseling Service** — The EXPO Center counsels students on study, travel, and work opportunities outside the United States, offering information on some 1,800 overseas study programs open to UCLA students. EXPO also maintains a library of current materials related to study and travel opportunities abroad. International Student Identity Cards and Youth Hostel memberships are issued at the center.

**Volunteer Income Tax Assistance Program (VITA)** — The VITA program provides free income tax aid to UCLA students and a variety of disadvantaged people off campus. Student volunteers receive extensive training by the IRS in preparing tax returns and tax counseling.

### 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, community service, or cooperative education programs. The office is located in 70 Powell Library (825-7867).

**Departmental Field Studies Development** — This program encourages the development of coherent field programs for academic credit in relevant departments. Departmental coordinators work with you to develop field projects and find placements and academic sponsors.

**Independent Field Studies** — You may design internships and field study opportunities to meet your specific academic, personal, and career goals. A field study coordinator helps you with your plans on a one-to-one basis and helps arrange Passed/Not Passed credit for appropriate field experience.

**Developmental Disabilities Immersion Program (DDIP)** — Cosponsored by Field Studies Development and the Departments of Psychology and Psychiatry, DDIP offers an intensive living, studying, and working experience in developmental disabilities. One session is offered each year during Winter and Spring Quarters. For more information, call 825-1627.

## Freshman and Sophomore Programs

### Freshman/Sophomore Professional School Seminar Program

This program focuses on the relationships between various academic disciplines and professional practice, and the characteristics common to the professions. Students seeking to define their own academic and career goals will gain valuable exposure to the views of professionals and the challenges and demands that stimulate professional activity.

Seminars are offered in the Fall, Winter, and Spring Quarters. Enrollment is limited to allow lower division students close contact with professional school faculty members. For further information, contact the Program Office in 80 Powell Library (825-5467).

### The Honors Collegium

The Honors Collegium is an innovative educational alternative designed primarily for UCLA's promising freshmen and sophomores. For a complete description of this program, see Chapter 5 on the College of Letters and Science.

## Individual Classes

Most departments offer the individual study (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 appropriate college or school chapter.

## Reserve Officer 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 carry 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 Chapter 5 on the College of Letters and Science.

## Advising and Academic Assistance

Because UCLA's academic standards are high, many students 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 will introduce you to the many kinds of assistance available to undergraduates. Refer to the section on "Student Services" in Chapter 1 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 prerequisites, 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** — A316 and A328 Murphy Hall, 825-1965 or 825-3382 (**Division of Honors** — A311 Murphy Hall, 825-1553 or 825-3786)

**College of Fine Arts** — A239 Murphy Hall, 825-9705

**School of Engineering and Applied Science** — 6426 Boelter Hall, 825-2826

**School of Nursing** — 2-200 Louis Factor Building, 825-7181

## Counseling Assistants

Counseling Assistants (CAs) are UCLA graduate students who have been specially trained to help new students with the transition into University life. Although employed in the College of Letters and Science, they represent a number of academic disciplines in several colleges and schools on campus. CAs help new students during Orientation with program planning and course selection, and are available throughout the year for follow-up visits and to provide academic information and personal support. The CA Office is located in A316 Murphy Hall.

## ASK Peer Counselors

ASK is a network of 14 academic peer counselors trained by the College of Letters and Science to advise you regarding college and University requirements and procedures and to make appropriate referrals to other campus resource offices. Stop by one of the ASK tables and talk with a fellow student in a convenient informal setting.

You can find ASK counselors at these campus locations: Campbell/Rolfe Quad, weekdays 10 a.m. to 1 p.m.; Kerckhoff Patio, weekdays 11 a.m. to 1 p.m.; Murphy Hall, weekdays 8 a.m. to 5 p.m.; Placement and Career Planning Center (south side), weekdays 10 a.m. to 1 p.m.; Powell Library (north and south sides), weekdays 10 a.m. to 1 p.m.

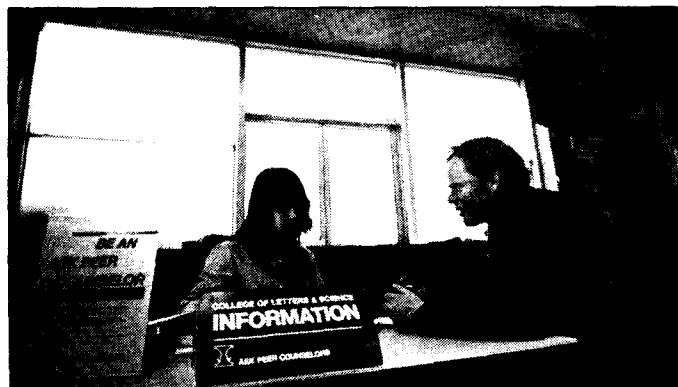
## Preparatory Programs for New Students

The Office of Preparatory Programs, located in A316 Murphy Hall (206-1217), administers six important programs to help new students adjust and succeed at UCLA: Orientation, Freshman Summer Program, Transfer Summer Program, Academic Advancement Program, ARC Math/Sciences Tutorials, and the ARC Composition Tutoring Lab and ESL Service Courses Tutorials. Since most of the courses which new students take are offered by the College of Letters and Science, the Office of Preparatory Programs is a part of that academic unit; however, the programs are open to new students enrolled in any college or school on campus.

## Orientation

Orientation at UCLA provides a comprehensive introduction to campus life. During the summer and before the beginning of the Winter and Spring Quarters, special programs offer new undergraduates extensive academic counseling and educational planning. During Orientation you work in small groups with peer counselors. You 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 some colleges and schools. Sessions for parents are also offered.

During the summer, Orientation offers three-day, two-night dormitory live-in programs for freshmen and two-day, one-night programs for transfer students. Prior to the Winter and Spring Quarters, one-day on-campus programs are offered. There is a fee for participation. For more information, contact the Orientation Office in A316 Murphy Hall (206-6685).



## Freshman Summer Program (FSP)

The Freshman Summer Program is a seven-week instructional program designed to help entering freshmen meet UCLA's high academic standards by improving composition, mathematical, and general learning skills.

Several hundred new freshmen get a head start every summer through the program's classroom instruction, tutorials, and learning workshops held for four hours each day. Special English courses — English A, English 1, and English as a Second Language — help students improve writing skills and meet the University's initial composition requirement. The program's math courses prepare them for subsequent university-level math courses — including calculus — required for many majors at UCLA. Moreover, students receive guidance on how to plan and insure enrollment in Fall Quarter classes.

FSP offers a firsthand introduction to UCLA. You can live in the residence halls (optional), take part in academic and personal counseling sessions, and generally get to know the campus and its facilities. The application fee is \$10, and if you have applied and are eligible for financial aid, there are no registration or tuition fees. (If you are not financial aid-eligible, you will have to pay a portion of the program's expense.) Other program costs are relatively low. You are eligible for the program if you have scored below 600 on the CEEB English Achievement Test and/or below 530 on the SAT Math, and if you have not taken advanced placement calculus. For more information, contact the Freshman Summer Program Office in 2235 Campbell Hall (206-1585).

## Transfer Summer Program (TSP)

The Transfer Summer Program is an intensive six-week instructional program to improve the composition and general learning skills of new transfer students. Its goal is to prepare such students for UCLA through approximately 15 hours per week of classroom instruction, tutorial assistance, and workshops.

The Transfer Summer Program consists of a composition course and an upper division course which, if completed successfully, yields credit toward your bachelor's degree. You have the option of residence hall living (strongly recommended) or commuter status; cultural, social, recreational activities, and counseling are available to help you adjust to UCLA. Academic advising sessions will help you plan — and guarantee your enrollment in — Fall Quarter classes. The application fee is \$10, and if you have applied and are eligible for financial aid, there are no registration or tuition fees. (If you are not financial aid-eligible, you will have to pay a portion of the program's expense.) Other program costs are relatively low.

For details on TSP, contact the Transfer Summer Program Office in 2235 Campbell Hall (206-1585).

## Academic Advancement Program

The Academic Advancement Program (AAP), formerly EOP, is the primary student affirmative action program at UCLA. AAP provides academic and personal support each year to some 3,800 students from low-income and ethnic backgrounds who have been historically underrepresented at UCLA. Its major goals are to help these students adjust to the University and to increase the likelihood of their college graduation. Among its services are peer counseling for all new students, professional/academic/personal counseling, individual and group tutoring sessions, career and graduate/professional school advice, and seminars to prepare you for graduate school entrance examinations.

AAP is open to U.S. citizens or permanent residents who are residents of California, and to Native Americans who can document their tribal affiliation. Applicants must meet regular University requirements for undergraduate admission. For more information, contact the AAP Office in 1209 Campbell Hall (825-1481).

## ARC Math/Sciences Tutorials

The Academic Resources Center Math/Sciences Tutorials (3973 Math Sciences) provide an organized appointment tutorial program for most math courses between Mathematics 1A and 32A, Chemistry 11A and 11B, Physics 6A, 6B, 8A, and 8B, and Biology 5. 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 four weeks of the quarter; early registration is advised.

For math and science courses not served by the appointment tutorials and for additional help with specific problems, the Math/Sciences Tutorials also coordinate a drop-in tutorial facility in 3970 and 3974 Math Sciences.

## ARC Composition Tutoring Lab and ESL Service Courses Tutorials

The Academic Resources Center Composition Tutoring Lab, developed in collaboration with the UCLA Writing Programs, provides individual assistance to students enrolled in English A, 1, and 3 and, as available, to students writing for other UCLA courses. The lab is staffed by trained undergraduate peer tutors who have shown outstanding ability in advanced composition courses.

The ARC ESL Service Courses Tutorials assist nonnative-speaking students with English grammar, idiom, pronunciation, and listening comprehension. Priority is given to students enrolled in English as a Second Language 33A, 33B, and 33C, and other ESL courses. The ESL tutors are all graduate students in the ESL Section.

Both of these services are located in 280 Powell Library. For tutoring appointments and further information, call 206-1211 or visit the reception desk in 290 Powell Library.

## Learning Resource Center (LRC)

Learning Resource Center services include the Learning Assistance Laboratory, the Language Laboratory, the Multimedia Learning Laboratory, and the Instructional Media Library. All of these resources rely on the new information technologies to help you improve academic skills, augment traditional classroom learning, and enrich your educational experiences. For general information, contact the LRC Office in 46 Powell Library (206-1248).

**Learning Assistance Laboratory** — Counselors in the Learning Assistance Laboratory, 290 Powell Library (206-1211), help you identify your learning needs and plan individualized self-instructional programs. Audio, video, and written materials are available to improve your reading comprehension and speed and writing skills, as well as concentration, time management, study, and test-taking strategies. Lab counselors can monitor and discuss your progress.

**Language Laboratory** — Students enrolled in foreign language classes are assigned by faculty to practice pronunciation and comprehension skills in the laboratory, 190 Powell Library (206-8855). Audiotape programs which accompany specific texts used in classes and listening, recording, and monitoring equipment are available.

**Multimedia Learning Laboratory** — Today many academic programs in the sciences, arts, and humanities depend on materials that are available only in video or audio formats or as computer software. You can use these resources at your own pace in the Multimedia Learning Laboratory located in 290 Powell Library (206-1211). The noncirculating collection includes course-related materials placed on reserve by faculty and assigned for independent study, and general interest materials.

**Instructional Media Library** maintains a large collection of educational films, videotapes, and slide/tape modules which it lends to regularly scheduled UCLA classes and campus organizations. Reference books and catalogs from educational and feature film distributors are available. The library staff offers assistance in researching films on any subject and obtaining materials from outside sources. Two preview rooms, located in 46 Powell Library, are available by appointment (825-0755).

## Dean of Students Office

The Dean of Students Office, located in 2224 Murphy Hall (825-3871), exists to help you, either directly or by referral, with whatever needs you might have. Direct services include general counseling; locating or sending emergency messages to students; verifying eligibility for automobile insurance discount; and helping in understanding University policies and procedures, including grievance procedures regarding student records, discrimination, student debts, and sexual harassment.

All UCLA students assume an obligation to act in a manner compatible with an educational institution. The Dean of Students Office plays a role in administering campus discipline and applying the standards of citizenship which you are expected to follow at UCLA. Those standards involve obeying the policies governing this campus and being aware that infractions of those policies can result in disciplinary action. See "Student Conduct: Violation of University Policies" in the Appendix for more information.

## Academic Excellence

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

### Dean's Honor List

The Colleges of Letters and Science and Fine Arts, and the School of Engineering and Applied Science, all award Dean's Honors to deserving students each quarter. 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 with the Bachelor's Degree

Your college or school awards graduation honors according to your overall GPA at the beginning of your last quarter of academic work or at graduation. To be eligible, you must have completed at least 90 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 included in the appropriate college and school chapters.

### Departmental Honors

In all campus units except the School of Engineering and Applied 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 may nominate exceptionally promising juniors and seniors as 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).

## Petitions

A petition is a piece of paper representing your need or desire to be excepted 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 or major, take more or fewer units than regulations permit, make late changes to your Study List, 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 or school or department.

## 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 quarter of your freshman year, or a cumulative 3.5 GPA at the end of the second and/or third quarters. Invitations are issued in Winter Quarter, and initiation is held during Spring Quarter. For more information, contact the Dean of Students Office, 2224 Murphy Hall (825-3871).

### Mortar Board

Mortar Board is a national honor society for college seniors which recognizes scholastic ability (a 3.0 GPA is required), outstanding and continual leadership, and dedicated service to the community. Membership applications are available in the Dean of Students Office, 2224 Murphy Hall (825-3871), during Winter Quarter.

### Phi Beta Kappa

Phi Beta Kappa is a national honorary society in the humanities, 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 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 the Phi Beta Kappa Office, James E. West Center (825-2477).

## Outstanding Senior Award

The Outstanding Senior Award offers recognition to graduating seniors who have demonstrated scholastic excellence, creativity in the department, and service to the University and community. Nominations are accepted from October through February of each year, and awards are presented at the annual Alumni Awards Program in June. For more information, contact the UCLA Alumni Association in the James E. West Center, 325 Westwood Plaza (825-3901).

# Graduate Study

# 3



## Nature of Graduate Education

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, excellent research centers, institutes, and laboratories in virtually every major discipline (see details in Chapter 1) all provide an extraordinary scope of opportunities for graduate endeavor.

Graduate training at UCLA takes place in the classroom, 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 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 first stage of graduate education leads to 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. The master's program is intended to develop your mastery of a field and prepare you for the practice of a profession.

The second stage leads to a doctoral degree (Ph.D., Ed.D., etc.) and is designed to prepare you for creative activity and original research, often in association with college or university teaching.

## Administration

### The Graduate Division

The UCLA Graduate Division is responsible for administering policy established by the Academic Senate's Graduate Council for master's, doctoral, and certain graduate professional degree programs. It oversees graduate recruitment and admissions, fellowships, teaching and re-

search assistantships 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 — Graduate Programs.

### The Graduate Council

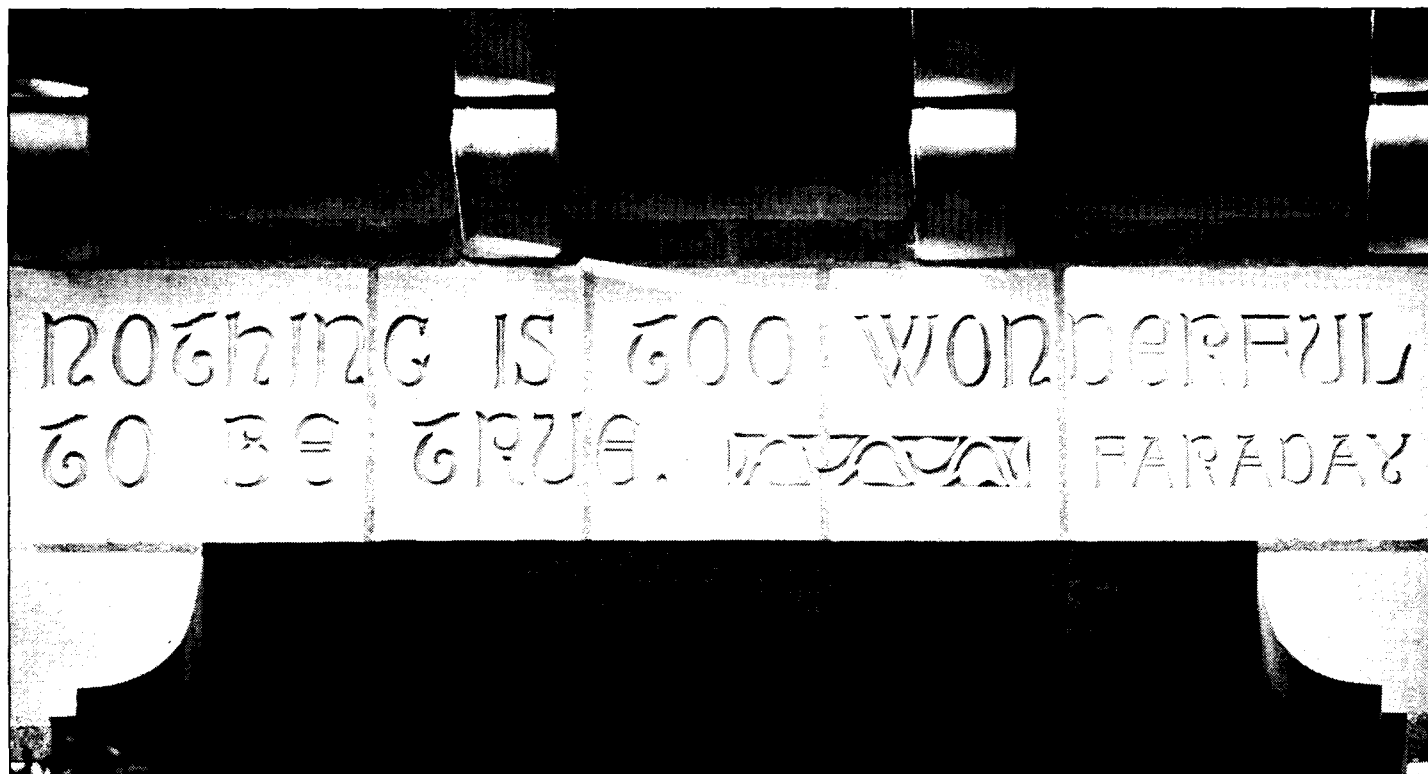
The Graduate Council is a standing committee of the UCLA faculty Academic Senate. In keeping with the University's philosophy of shared governance, it establishes policy for graduate education at UCLA, including requirements and standards for admission and graduate degree programs, and makes recommendations regarding fellowships and apprentice personnel. A major responsibility of the Graduate Council is the regular review of all graduate programs.

### The Graduate Adviser

Upon admission to a department, program, or school, each graduate student is assigned a graduate adviser who approves Official Study Lists and assists the student in program planning and completing degree requirements. The graduate adviser is available for counseling whenever needed, but departments usually require at least one student consultation each quarter. 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)

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 Control 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. The GSA Office is located in 301 Kerckhoff Hall (206-8512).





# Graduate Admission

Information:  
Graduate Admissions Office  
1247 Murphy Hall  
825-1711

## Admission Requirements

All applicants to graduate standing must hold a bachelor's degree or the equivalent from a regionally accredited institution comparable in standard to that awarded at the University of California. A scholastic average of B or better is required in junior- and senior-year coursework and in any graduate study.

Applicants who have completed their first university degrees at institutions outside the U.S. must pass the Test of English as a Foreign Language (TOEFL). For details, see "Proficiency in English" below.

Meeting the minimum requirements does not ensure graduate admission, which is limited by the number of places available in UCLA's schools, colleges, 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 *Application for Graduate Admission, Fellowship and Financial Aid* to the Graduate Division. You may obtain this form, in person or by mail, from your prospective school or department or from the Graduate Admissions Office, 1247 Murphy Hall, University of California, Los Angeles, CA 90024.

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 Session courses does not constitute admission to graduate standing.

Applications and supporting papers should be on file in the Graduate Admissions Office by the following dates:

October 1, 1984, for Winter Quarter 1985  
December 30, 1984, for Spring Quarter 1985  
January 14, 1985, for Fall Quarter 1985

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 \$35 nonrefundable application fee, are specified in the application packet.

**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 February so your scores arrive on time. **GRE scores should be sent directly to your prospective department and not to the Graduate Division.**

### 1984-85 GRE Test Dates

|                              |                  |
|------------------------------|------------------|
| October 13, 1984             | February 2, 1985 |
| December 8, 1984             | April 13, 1985   |
| June 8, 1985 (aptitude only) |                  |

GRE applications and information are available from offices of the Educational Testing Service, either at Box 995, Princeton, NJ 08541, 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.

**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.

## Foreign Applicants

Applicants who have credentials from universities and colleges in foreign countries should submit applications at least two months before the dates listed above. Foreign applicants should have an academic degree or professional title and will be evaluated on the basis of grades (marks) and class or rank achieved.

Foreign applicants must have adequate preparation for admission to graduate study at UCLA. 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. A three- or four-year ordinary or pass degree or professional diploma, or a certificate from a technical, vocational, or postsecondary specialized school, does not qualify you for graduate admission.

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)** — Foreign students who hold a bachelor's or higher degree from a university in which English is the spoken tongue and the medium of instruction, or who have completed at least two years of full-time study at such an institution, are exempt from both the TOEFL and the UCLA English as a Second Language Placement Examination (ESLPE). All other applicants must take and pass the TOEFL, administered by the Educational Testing Service in some 95 foreign centers. Applications are available from the Educational Testing Service, Box 995, Princeton, NJ 08541.

**UCLA English as a Second Language Placement Examination (ESLPE)** — If your first language is not English, you will be required to take the UCLA ESLPE before the term in which you are to register.

**Test of Spoken English** — If you are a foreign 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.

## Graduate Majors and Degrees

| MAJORS                                      | DEGREES  | OTHER  |
|---|--|--|
| African Area Studies .....                  | M.A.   |  |
| Afro-American Studies .....                 | M.A.   |  |
| American Indian Studies .....               | M.A.   |  |
| Anatomy .....                               | M.S., C.Phil., Ph.D.                                       |  |
| Anesthesiology                              |  |  |
| Nurse Anesthesia .....                      | M.S.   |  |
| Anthropology .....                          | M.A., Ph.D.  |  |
| Applied Linguistics .....                   | C.Phil., Ph.D.   |  |
| Archaeology .....                           | M.A., Ph.D.  |  |
| Architecture and Urban Planning             |  |  |
| Architecture/Urban Design Program .....     | M.Arch. I, M.Arch. II, .....                               | Certificate of Specialization (Architecture/Urban Design)  |
|   | M.A. (Architecture/Urban Planning), Ph.D. (Architecture)   |  |
| Urban Planning Program .....                | M.A. (Architecture/Urban Planning), Ph.D. (Urban Planning) |  |
| Art, Design, and Art History                |  |  |
| Art (Art, Design) .....                     | M.A., M.F.A.   |  |
| Art History .....                           | M.A., Ph.D.  |  |
| Asian American Studies .....                | M.A.   |  |
| Astronomy .....                             | M.S., M.A.T., Ph.D.  |  |
| Atmospheric Sciences .....                  | M.S., C.Phil., Ph.D.                                       |  |
| Biological Chemistry .....                  | M.S., Ph.D.  |  |
| Biology .....                               | M.A., C.Phil., Ph.D.                                       |  |
| Biomathematics .....                        | M.S., Ph.D.  |  |
| Chemistry and Biochemistry                  |  |  |
| Biochemistry .....                          | M.S., C.Phil., Ph.D.                                       |  |
| Chemistry .....                             | M.S., C.Phil., Ph.D.                                       |  |
| Classics .....                              | M.A., C.Phil., Ph.D.                                       |  |
| Greek .....                                 | M.A.   |  |
| Latin .....                                 | M.A.   |  |
| Comparative Literature .....                | M.A., C.Phil., Ph.D.                                       |  |
| Dance .....                                 | M.A.   |  |
| Dentistry .....                             | D.D.S. ....  | Postgraduate Certificate Programs  |
| Oral Biology .....                          | M.S.   |  |
| Earth and Space Sciences                    |  |  |
| Geochemistry .....                          | M.S., C.Phil., Ph.D.                                       |  |
| Geology .....                               | M.S., C.Phil., Ph.D.                                       |  |
| (Nonrenewable Natural Resources) .....      | M.S.   |  |
| Geophysics and Space Physics .....          | M.S., Ph.D.  |  |
| East Asian Languages and Cultures .....     | M.A., C.Phil., Ph.D.                                       |  |
| Economics .....                             | M.A., C.Phil., Ph.D.                                       |  |
| Education .....                             | M.Ed., M.A., Ed.D., Ph.D. ....                             | Credential Programs in Multiple and Single Subject Teaching, Bilingual Emphasis, Reading Specialist, Pupil Personnel Services, School Administrative Services, School Psychologist |
| Special Education .....                     | Joint Ph.D. with Cal State University, L.A.                |  |
| Engineering and Applied Science .....       | —  | Certificate of Specialization (Engineering and Applied Science)  |
| Computer Science .....                      | M.S., Ph.D.  |  |
| Engineering .....                           | M.S., M.Engr., Engr., Ph.D.                                |  |
| English .....                               | M.A., C.Phil., Ph.D.                                       |  |
| English as a Second Language                |  |  |
| Teaching English as a Second Language ..... | M.A. ....  | Certificate Program  |
| Environmental Science and Engineering ..... | D.Env.   |  |
| Folklore and Mythology .....                | M.A., Ph.D.  |  |
| French .....                                | M.A., C.Phil., Ph.D.                                       |  |
| Geography .....                             | M.A., C.Phil., Ph.D.                                       |  |
| Germanic Languages .....                    | C. Phil., Ph.D.  |  |
| German .....                                | M.A.   |  |
| Scandinavian .....                          | M.A.   |  |
| History .....                               | M.A., C.Phil., Ph.D.                                       |  |
| Indo-European Studies .....                 | C.Phil., Ph.D.   |  |

| MAJORS  | DEGREES   | OTHER   |
|---|---|---|
| Islamic Studies .....                                   | M.A., C.Phil., Ph.D.                                    |   |
| Italian .....   | M.A., C.Phil., Ph.D.                                    |   |
| Kinesiology .....                                       | M.S., Ph.D.   |   |
| Latin American Studies .....                            | M.A.  |   |
| Law .....   | J.D., LL.M.   |   |
| Library and Information Science .....                   | M.L.S., Ph.D.   | Certificate of Specialization Program                 |
| Linguistics .....                                       | M.A., C.Phil., Ph.D.                                    |   |
| Management .....  | M.B.A., Executive M.B.A., M.S.,<br>C.Phil., Ph.D.       |   |
| Mathematics .....                                       | M.A., M.A.T., C.Phil., Ph.D.                            |   |
| Medicine .....  | M.D.  | Certificates of Postgraduate Medical Study            |
| Microbiology .....                                      | M.A., Ph.D.   |   |
| Microbiology and Immunology .....                       | M.S.*, Ph.D.  |   |
| Molecular Biology .....                                 | Ph.D.   |   |
| Music .....   | M.A., M.F.A. (Performance<br>Practices), C.Phil., Ph.D. |   |
| Near Eastern Languages and Cultures .....               | M.A., C.Phil., Ph.D.                                    |   |
| Neuroscience .....                                      | Ph.D.   |   |
| Nursing .....   | M.N.  |   |
| Pathology   |   |   |
| Experimental Pathology .....                            | M.S., Ph.D.   |   |
| Pharmacology .....                                      | M.S.*, Ph.D.  |   |
| Philosophy .....  | M.A., C.Phil., Ph.D.                                    |   |
| Physics .....   | M.S., M.A.T., Ph.D.                                     |   |
| Physiology .....  | M.S.*, Ph.D.  |   |
| Political Science .....                                 | M.A., C.Phil., Ph.D.                                    |   |
| Psychiatry and Biobehavioral Sciences .....             | —   | Certificate Program in Clinical Psychology Internship |
| Social Psychiatry .....                                 | M.S.P. (not admitting new<br>students at this time)     |   |
| Psychology .....  | M.A.*, C.Phil., Ph.D.                                   |   |
| Public Health .....                                     | M.P.H., M.S., Dr.P.H., Ph.D.                            |   |
| Biostatistics .....                                     | M.S., Ph.D.   |   |
| Preventive Medicine and Public Health .....             | M.S.  |   |
| Radiological Sciences                                   |   |   |
| Medical Physics .....                                   | M.S., Ph.D.   |   |
| Romance Linguistics and Literature .....                | M.A., C.Phil., Ph.D.                                    |   |
| Slavic Languages and Literatures .....                  | M.A., C.Phil., Ph.D.                                    |   |
| Social Welfare .....                                    | M.S.W., D.S.W.  |   |
| Sociology .....   | M.A., C.Phil., Ph.D.                                    |   |
| Spanish and Portuguese                                  |   |   |
| Hispanic Languages and Literatures .....                | C.Phil., Ph.D.  |   |
| Luso-Brazilian Language and Literatures .....           | M.A.  |   |
| Spanish .....   | M.A.  |   |
| Theater Arts (Motion Picture/Television, Theater) ..... | M.A., M.F.A., C.Phil., Ph.D.                            |   |

\*The department admits only applicants whose objective is the Ph.D.

## No Degree Objective

UCLA has no special graduate, limited, or unclassified categories of admission. Under some circumstances, however, applicants may be admitted for coursework without a degree objective. Teachers with a master's degree who wish some refresher study, or foreign students on a year's stay in the United States, may wish to apply in this manner. Requirements for admission are the same as those for degree programs.

## 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 chapter). If you are applying for a second academic degree at the same level or lower than the one you already hold, you will be 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 Session Courses

Enrollment in Summer Session 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 Session 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 Session. Information and applications are available from the Office of Summer Sessions, 1254 Murphy Hall. (Also refer to the sections on "Academic Residence" and "Transfer of Credit" later in this chapter.)

## Renewal of Application

An offer of admission is valid for a specific quarter only. If you were not admitted, or failed to register in the quarter for which you were first accepted, you should file a Renewal of Application form for admission to a later quarter. Forms are available from Graduate Admissions or from the departments and should be submitted to the Graduate Admissions Office, 1247 Murphy Hall. Filing dates are the same as those for new applications. Forms should be accompanied by official transcripts, in duplicate, of any graduate work completed since the former application.

You may file only one Renewal of Application without the \$35 application fee. Acceptance for admission at any earlier date does not guarantee approval of the renewal. Since application records are kept no longer than two years, you may apply for admission after this period only by completing a new application and providing all necessary documents.

## Readmission

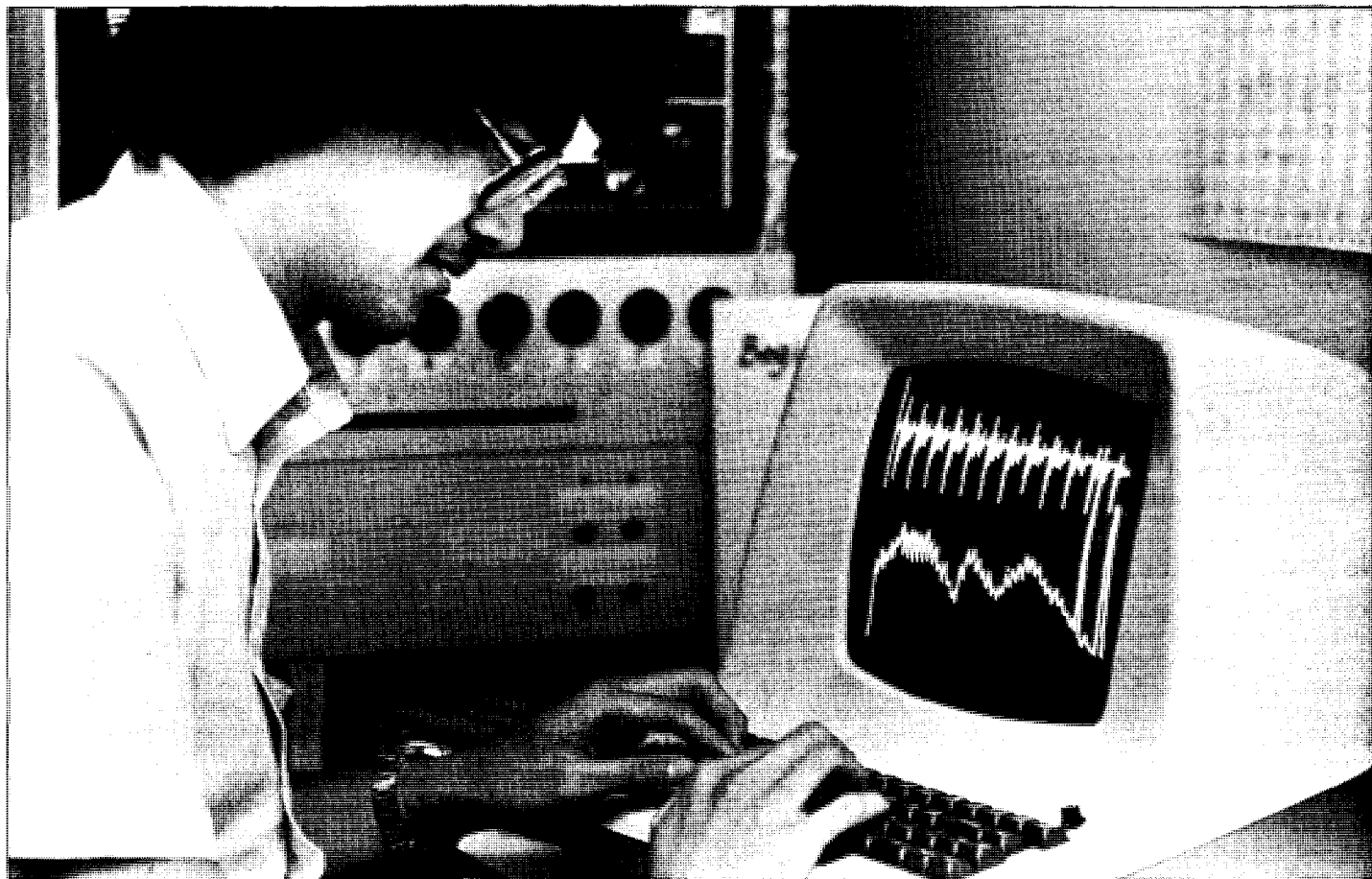
Students who are granted a formal leave of absence (see "Leaving UCLA" in Chapter 4) do not have to apply for readmission if they resume their graduate work in accordance with the terms of their leaves. All other continuing graduate students who fail to register for any regular session, or who fail to complete a quarter 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 Readmission. Forms are available from, and should be submitted to, the Graduate Admissions Office, 1247 Murphy Hall. The following materials must accompany the Application for Readmission:

- (1) A check or money order for \$35 (nonrefundable) made payable to The Regents of the University of California.
- (2) Official transcripts of record, in duplicate, for all graduate work completed since your last registration at UCLA. If you are returning to UCLA after more than ten years, submit transcripts of all academic work previously submitted.
- (3) 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 Readmission.)

## 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.



*In the Linguistics Department, spoken sounds are converted to line drawings on a television screen.*

# Registration and Enrollment

## Information:

Registrar's Office  
1134 Murphy Hall  
825-1091, 825-3801

Detailed information on registration 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 quarter. To obtain a copy by mail, write to ASUCLA Students' Store, 308 Westwood Plaza, Los Angeles, CA 90024, Attn: Mail Out. Include a check or money order for \$1.50 payable to ASUCLA.

Registration consists of paying fees and enrolling in classes. The registration packet, issued by the Registrar, contains cards for paying fees and a Study List Card for requesting enrollment in classes. You must complete and return the cards by the established deadlines to be officially registered and enrolled for the quarter.

Registration may be accomplished by mail or in person. You may use a combination of both processes, but **all eligible students are encouraged to pay fees by mail**. It will save you the time and trouble of waiting in line.

### Last Mailing Dates to Register by Mail

(Tentative only; refer to the *Schedule of Classes* for firm dates)

**August 31 for Fall Quarter 1984**  
**December 7 for Winter Quarter 1985**  
**March 6 for Spring Quarter 1985**

Several days immediately preceding the beginning of classes each quarter are set aside for in-person registration. Hours are 8:30 a.m. to 5 p.m. on the following days:

### Registration in Person

**September 24-28 for Fall Quarter 1984**  
**January 2-4 for Winter Quarter 1985**  
**March 27-29 for Spring Quarter 1985**

## Enrollment

Enrollment requests are processed from the completed Study List Card contained in the registration packet. To be enrolled for credit, you must complete the card, obtain your adviser's signature approval, and file it with your major department by the tenth day of classes (there is a \$50 fee for late filing of the Study List).

You are guaranteed enrollment in courses in your major department provided that department is coded correctly on your Study List Card. If you have recently changed majors and your Study List Card is incorrect, you need proof that the Graduate Division has approved the change. For guaranteed enrollment in restricted or possibly closed courses outside your major department, you must submit an approved Permission to Enroll form with the Study List Card.

## Change of Major

Continuing graduate students may petition for a change of major after discussing plans with — and obtaining the acceptance of — the new department. Forms for this purpose are available from, and should be filed with, the Graduate Division, Student and Academic Affairs Section, 1225 Murphy Hall. Deadlines are generally the same as those for the graduate admissions procedure, but you should consult with the new program adviser before filing an application.

## Full-Time Graduate Program

Three graduate courses (or 12 units) per quarter are considered the normal enrollment for graduate students. A minimum of eight units is required for full-time standing for all students, including teaching assistants, research assistants, and fellowship awardees.

**Teaching and research assistants** are required to take at least two courses per quarter, or the equivalent of eight units, throughout their appointments. Those assistants who take a leave of absence or withdraw, terminate their appointments. Course 375 for teaching assistants and independent studies at the 500 level may be included in reaching the eight-unit load.

**Graduate students holding fellowships** must be enrolled full-time students, both before and after advancement to candidacy. The two courses required per quarter 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 Veterans Administration regulations is available in the Office of Special Services/Veterans Affairs, A255 Murphy Hall.

## Continuous Registration

Graduate students are normally required to register in all three quarters of each academic year, including the quarter in which their degrees or certificates are to be awarded. If you are granted a formal leave of absence or are eligible for the filing fee (see below), you are exempt from this requirement. You must be registered in order to use University facilities or to 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 quarter may register "in absentia" and pay one-half the registration fee, plus all other fees in full. Petitions for the reduced fee are available from the department and from the Graduate Fellowship and Assistantship Section, 1228 Murphy Hall.

## Registration in the Final Quarter for the Award of the Degree

(1) You must register in the final quarter in which the degree is to be conferred if you are (a) completing coursework, (b) using library or other University facilities, or (c) taking up faculty time other than for a final reading of the thesis or dissertation or to administer the comprehensive or final examination.

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

(3) If you were registered in the preceding quarter and have completed all degree requirements, including final examinations and filing your thesis/dissertation, during the interval between quarters 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 quarter.

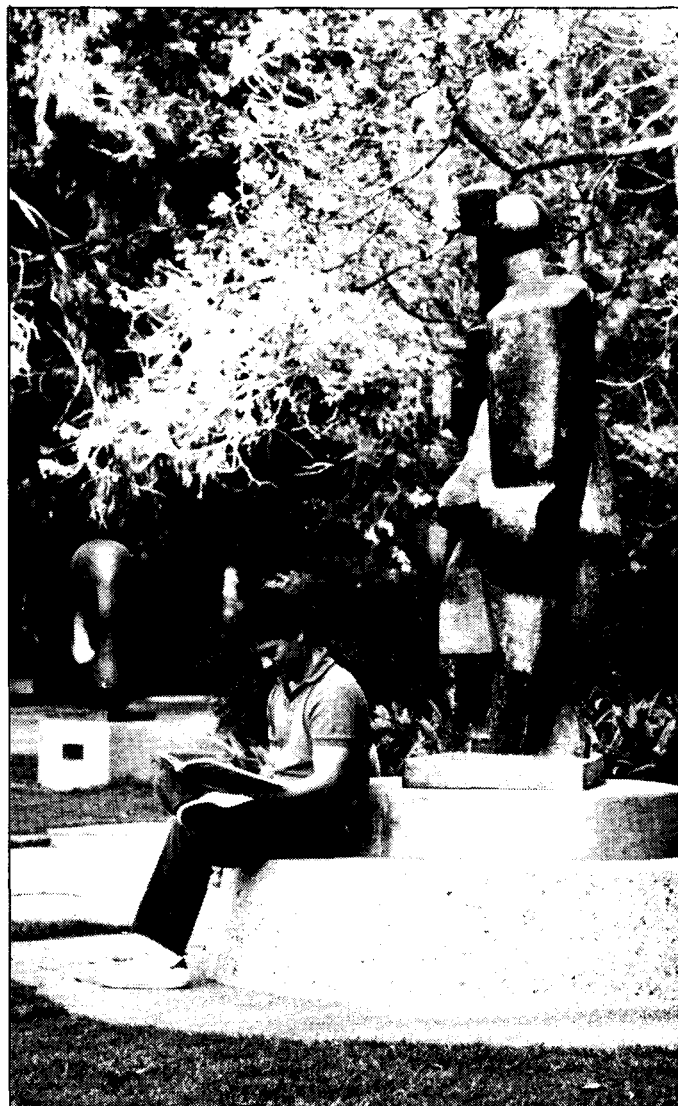
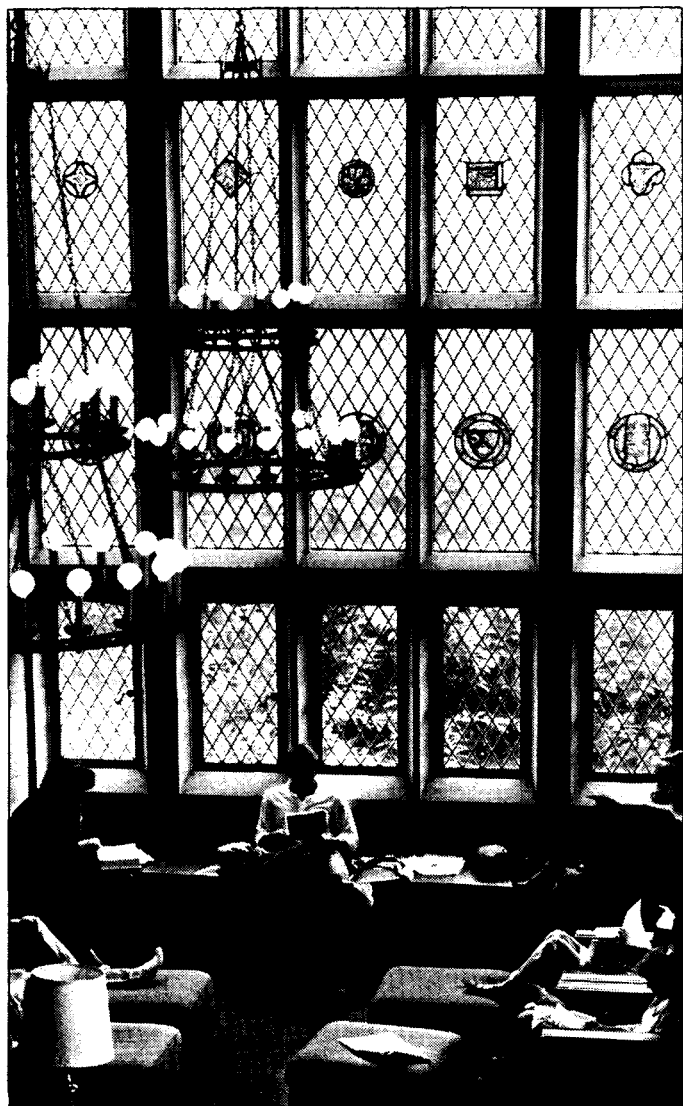
## The Filing Fee

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 one-half the registration fee instead of registering and paying all required fees. Applications are available at the Graduate Division, Student and Academic Affairs Section, 1225 Murphy Hall. For eligibility conditions and further information on the filing fee and registration in the final quarter, please consult *Standards and Procedures for Graduate Study at UCLA*, available in 1225 Murphy Hall or in individual departments.

## Health Evaluation

New students enrolling in the School of Dentistry, Education, Medicine, Nursing, or Social Welfare must complete and return to the Student Health Service the Health Evaluation form provided by their departments.

All new and reentering foreign students must obtain clearance in person at the Student Health Service by completing and returning a Health Evaluation form, by verifying adequate health insurance coverage, and by establishing absence of active tuberculosis. In addition, all foreign students must obtain an annual health insurance clearance each fall at the SHS Insurance Office. For information, call 825-4073.



# Graduate Fees and Financial Support

## 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 returning student is required to submit a Statement of Legal Residence to the Registrar's Office. Students classified as nonresidents must pay tuition of \$1,188 per quarter (see the Appendix for the nonresident tuition fee statement).

At the time of registration each quarter, all graduate students (except Law School students\*) must pay the following fixed fees. **Fees for Fall Quarter 1984 are current as of publication date but are subject to change without notice by The Regents.**

### Quarterly Expenses, Fall 1984

|   |                |
|---|----------------|
| University registration fee             | \$174          |
| Education fee                           | 261            |
| Ackerman Student Union fee              | 4              |
| Graduate Students Association (GSA) fee | 5              |
| Wooden Recreation Center fee            | 4              |
| <b>Total for California residents</b>   | <b>\$448</b>   |
| Nonresident tuition fee                 | <u>\$1,188</u> |
| <b>Total for nonresidents</b>           | <b>\$1,636</b> |

\*Students in the School of Law should refer to that school's announcement for explanation of fees per semester.

## Other Fees

Miscellaneous fees charged to UCLA graduate students include a \$50 charge for late payment of registration fees or late filing of the Study List (after the tenth day of classes); \$25 for advancement to doctoral candidacy; and \$5 or less 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 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 Chapter 4 of this catalog or refer to the *Schedule of Classes*.

## Nonresident Tuition Waivers

A limited number of nonresident tuition waivers are awarded each year to graduate students with distinguished academic records. Details of eligibility are available in your department or the Graduate Fellowship and Assistantship Section, 1228 Murphy Hall.

## Lapse of Status

Your status may lapse if you fail to settle financial obligations when due (or make satisfactory arrangements with the Main Cashier if payment cannot be made) or if you fail to respond to official University notices.

With lapsed status you are not entitled to any University services except assistance toward reinstatement. After you have satisfied the obligation, a petition for reinstatement must be approved by the office recommending the lapse of status and filed with the Registrar's Office with a \$10 reinstatement fee.

## Estimated Annual Budget for California Residents

|                               | Single, Commuter,<br>Living at Parents'<br>Home | Single, Living at<br>UCLA Residence<br>Hall, Co-Op,<br>Sorority, or<br>Fraternity | Single, Living in<br>Off-Campus<br>Apartment or<br>House | Married,<br>Living in UCLA<br>Family Student<br>Housing | Married,<br>Living in<br>Off-Campus<br>Apartment or<br>House |
|-------------------------------|---|---|--|---|--|
| University Fees               | \$1,341   | \$1,341   | \$1,341  | \$1,341   | \$1,341  |
| Books & Supplies              | 495   | 495   | 495  | 495   | 495  |
| Food & Rent                   | 1,290   | 2,580   | 4,965  | 5,550   | 8,300  |
| Transportation<br>(local bus) | 240   | 240   | 240  | 480   | 480  |
| Personal                      | <u>1,064</u>                                    | <u>1,374*</u>   | <u>1,169</u>   | <u>2,004</u>  | <u>2,004</u>   |
| <b>Total Budget</b>           | <b>\$4,430</b>                                  | <b>\$6,030</b>  | <b>\$8,210</b>   | <b>\$9,870</b>  | <b>\$12,620</b>  |

\*Includes \$100 for extra meals during breaks.

For more information on housing, see Chapter 1 or contact the UCLA Housing Office in 78 Dodd Hall (825-4491).



## Living Expenses

Printed on the previous page is an estimated yearly budget for graduate California residents. Nonresidents must add the \$3,564 annual tuition fee to their total expenses for an accurate estimate. Expenses cover the three regular session quarters of the 1984-85 academic year and do not include Summer Session. (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.)

## Financial Support

Information:

Graduate Fellowship and Assistantship Section  
1228 Murphy Hall  
825-3521

As a major center for graduate study, UCLA offers its qualified graduate students substantial support through several types of financial assistance. Awards are based on either academic merit or financial need, but the two types are not mutually exclusive. You are strongly urged to apply in all categories for which you may qualify.

Entering graduate students interested in University-administered awards should complete the *Application for Graduate Admission, Fellowship and Financial Aid*. Readmitted students should request the Graduate Application for Readmission form, and continuing graduate students should complete the Fellowship and Assistantship Application for Continuing Students. Completed applications must be returned by **December 30**. (Some departments have earlier deadlines; consult the application packet for details.)

*Graduate Student Support Resources*, a booklet describing the full range of financial assistance available, is published annually by the Graduate Fellowship and Assistantship Section. Contact that office or your department for more detailed information.

## Awards Based on Academic Merit

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.

## 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 quarter in the form of an interest-free advance loan check. Interested students should apply to their departments.) **Research Assistantships** give students experience working on faculty-supervised research projects.

## Fellowships and Grants

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

## In-Candidacy Fee Offset Grant Program

The In-Candidacy Fee Offset Grant Program pays the education fee for eligible doctoral students who have been advanced to candidacy. This program is described in detail in *Standards and Procedures for Graduate Study at UCLA*, available in 1225 Murphy Hall or in individual departments.

## Graduate Affirmative Action Awards

These programs were established to increase the graduate enrollment of students from groups which, as a result of societal inequities, have been traditionally underrepresented in graduate education. These include American Indians, Blacks, Chicanos, Filipinos, and Puerto Ricans. In addition, Asian Americans and women are eligible in fields where they are underrepresented.

There is one need-based financial aid program (GAP), as well as several merit-based fellowship programs (three are listed below, but from year to year some programs terminate and others are initiated). Students are encouraged to apply for both need- and merit-based support; fellowship awards will reduce the size of financial aid grants. All applicants for merit-based awards must be U.S. citizens. For more information on these programs, contact the Graduate Affirmative Affairs Office, 1242 Murphy Hall (825-2780).

(1) **Graduate Advancement Program (GAP)** — Awards are made on the basis of need as demonstrated by normal University financial aid standards. These awards differ from ordinary financial aid in that grants may be slightly larger and work-study grants do not require matching by employers.

(2) **Graduate and Professional Opportunity Program (G\*POP)** — Awards provide stipends and fees to entering students in the fields of archaeology, management, and urban planning. Continuation of this program is contingent upon further federal support.

(3) **Graduate Opportunity Fellowship Program (GOFP)** — Merit-based fellowships provide stipends and registration fees to students from groups traditionally underrepresented in graduate programs (e.g., women are eligible for fellowships in such fields as engineering and physics, among others).

(4) **Dorothy Danforth Compton Fellowship** — UCLA is one of ten universities selected to receive a grant from the Danforth Foundation to support outstanding Black, Mexican American, Native American, and Puerto Rican students committed to careers in college and university teaching. A limited number of four-year fellowships are awarded to Ph.D. students in the humanities, social sciences, physical sciences, health sciences, and fine arts. Applicants must be in departments offering a doctoral program having teaching or research provisions.

## 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 awards include educational grants, low-interest loans, and work-study employment. Students are usually awarded a financial aid "package" which is a combination of these forms of assistance. Further information is available at the Financial Aid Office, A107 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 principally by means of the qualifying and comprehensive examinations. Achievement in research is judged by the merits of the thesis or dissertation.

## The Master's Degree

### University Minimum Standards

The requirements described here 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. You are advised to consult the appropriate school announcement or your graduate adviser.

### Academic Residence

The minimum residence requirement consists of three academic quarters in graduate standing at the University of California, including at least two quarters at UCLA. Academic residency is established by successfully completing at least one graduate or upper division course (four units) during a quarter.

You may earn one quarter 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 Summer Session for at least four units of credit. Residence earned through Summer Session enrollment is limited to one-third of the degree requirements.

### University Minimum Standards For Advanced Degrees\*

| REQUIREMENT                      | MASTER'S DEGREE   | DOCTORAL DEGREE  |
|----------------------------------|---|--|
| ACADEMIC RESIDENCE               | 1 year (3 quarters) in graduate standing at University of California, 2 quarters at UCLA.   | 2 years (6 quarters) in graduate standing at University of California, including 3 consecutive quarters at UCLA.** In most cases a longer period of residence is necessary.  |
| PROGRAM OF STUDY                 | 9 graduate and upper division courses (36 units) in graduate standing, including at least 5 graduate courses.   | No specific course requirements. Program is planned with adviser and guidance committee.   |
| SCHOLARSHIP                      | B average required in all courses taken in graduate standing at UC and in all courses applied toward the master's degree.   | B average required in all courses taken in graduate standing at UC.  |
| FOREIGN LANGUAGE                 | Requirements are determined by individual departments and programs.   | Requirements are determined by individual departments and programs.  |
| ADVANCEMENT TO CANDIDACY         | All requirements for advancement, including foreign language examinations, must be satisfied. Forms must be filed by second week of the quarter in which degree is to be awarded. | The University Oral Qualifying Examination must be passed; additional departmental and language requirements must be completed. Advancement is officially granted when you pay the \$25 fee and return the application to the Graduate Division. |
| FINAL REQUIREMENT FOR THE DEGREE | Master's thesis or comprehensive examination (written, oral, or both).  | Doctoral dissertation. A final oral examination in defense of the dissertation may also be required.   |

\* Individual departments and programs may set higher standards. Please refer to departmental listings under the appropriate college or school chapter or consult with your graduate adviser for details.

\*\* If the master's degree was earned at UCLA, one year of residence will have been satisfied.



## Courses and Grades

The master's program at UCLA consists of at least nine graduate and upper division courses (or any number of fractional courses totaling 36 units) completed in graduate standing, of which at least five must be graduate. To maintain satisfactory progress toward the master's degree, UCLA requires at least a B average in all courses taken in graduate standing at the University and in all courses applied toward the master's degree.

## Transfer of Credit

There are two 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 Departmental Scholar. 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 chapter).

**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.

**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 higher in graduate standing at institutions outside the University of California may apply toward UCLA master's programs. 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.

**From Summer Session** — Regular session courses offered in UCLA Summer Session 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 graduate adviser about applying Summer Session courses to your graduate program.

**From University Extension** — University Extension courses (100 series) taken before July 1, 1969, may apply on approval of the department and Dean of the Graduate Division. No more than two such courses (eight units) may apply.

Extension courses taken after July 1, 1969, can be applied only if they were concurrent courses (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 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.

## Foreign Language Requirements

Foreign language requirements are determined by individual departments and programs. If your program has a language requirement, for maximum benefit you should fulfill it before you begin graduate study or

as soon as possible thereafter. All foreign language requirements must be satisfied before advancement to candidacy.

Depending on your department's regulations, you may fulfill foreign language requirements either by passing the Educational Testing Service (ETS) Graduate School Tests in French, German, Russian, or Spanish or (in languages not offered by ETS) by passing examinations given by UCLA language departments. You may register for the ETS examination at the University Extension Cashier's Office, 10995 Le Conte Avenue. UCLA enrollment is not required. Consult University 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, refer to *Standards and Procedures for Graduate Study at UCLA* or see your graduate adviser.

## Advancement to Candidacy

When you have completed approximately half the program for the master's degree (usually at least two quarters), you should formally apply for advancement to candidacy. Application forms are available from your department or the Graduate Division, Student and Academic Affairs Section (1225 Murphy Hall), and must be filed in your major department no later than the second week of the quarter 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 quarter in which you plan to receive the degree is by petition only.

## Plans of Study

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 adviser 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 the 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 *Standards and Procedures for Graduate Study at UCLA* 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. For guidance in the final preparation of the thesis, you may:

- (1) Consult the Manuscript Adviser, Office of the University Archivist, 134 Powell Library.
- (2) Read *Regulations for Thesis and Dissertation Preparation*, available in the Graduate Division, Student and Academic Affairs Section, or in the Archivist's Office.
- (3) Attend an orientation meeting on manuscript preparation and filing procedures conducted soon after the start of each quarter (see the Calendar at the beginning of this catalog).

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 the Graduate Division, Student and Academic Affairs Section, 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 Manuscript Adviser approximately two weeks before the degree is to be awarded. Deadlines for this academic year are:

December 3 for Fall Quarter 1984  
 March 11 for Winter Quarter 1985  
 June 3 for Spring Quarter 1985

### 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 form (written, oral, or both) is available from your graduate adviser.

## The 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 upon 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 below). Four quarters in academic residence, three of them (usually the last three) in continuous residence at UCLA, are required. (Also refer to "Academic Residence" under doctoral programs below.)

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 beginning of this chapter. For further details, consult *Standards and Procedures for Graduate Study at UCLA*, available in 1225 Murphy Hall and in individual departments.

## The Doctoral Degree

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 are the University's minimum standards for doctoral degrees. Each department may adopt additional requirements according to the demands of the field of study. Please consult your graduate adviser for details.

### Academic Residence

The minimum residence requirement for the doctoral degree is two years (six quarters) 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 is established by successfully completing one graduate or upper division course (four units) during a quarter.

You may earn one quarter of residence for summer study in either of these ways: (1) enroll in two *consecutive* 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 Summer Session for at least four units of credit. Residence earned through Summer Session enrollment is limited to one-third of the degree requirements.

### Program of Study and Scholarship

Programs of study for doctoral degrees are more individualized than those for master's degrees, permitting a higher degree of specialization. The University does not specify course requirements for doctoral programs. However, individual programs have coursework or other requirements which must be completed before taking the University Oral Qualifying Examination. You will determine your course of study in consultation with the adviser and guidance committee who supervise your activities until the doctoral committee is appointed.

Satisfactory progress toward the doctoral degree requires that you maintain at least a B average in all courses taken in graduate standing on any University of California campus.

### Foreign Language Requirements

Most departments require doctoral 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 Oral Qualifying Examination. See "Foreign Language Requirements" under the Master's Degree for information on fulfilling these requirements.

### Examinations Before Advancement to Candidacy

A doctoral program generally involves two stages, separated by advancement to candidacy. The first stage is spent in fulfilling 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 five faculty members nominated by your department, is appointed by the Dean of the Graduate Division (consult *Standards and Procedures for Graduate Study at UCLA* 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

You are eligible for advancement to doctoral candidacy after passing the University Oral Qualifying Examination with no more than one negative vote, completing any additional departmental requirements, and maintaining a 3.0 grade-point average in graduate standing. You must complete the application for candidacy form sent to you by the Registrar's Office, have it signed by your doctoral committee chair, pay a \$25 advancement to candidacy fee, and submit the form to the Graduate Division, Student and Academic Affairs Section. You are officially advanced to candidacy on the date the completed form is submitted.

## Writing the Dissertation

Once the doctoral committee approves the subject for your dissertation, the second or in-candidacy stage of the doctoral program 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.

## 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.

## Filing the Dissertation

You are responsible for following instructions on the preparation of the dissertation and for observing filing deadlines. For guidance in the preparation and submission of the dissertation and accompanying abstract, you may:

- (1) Consult the Manuscript Adviser, Office of the University Archivist, 134 Powell Library.
- (2) Read *Regulations for Thesis and Dissertation Preparation*, available in the Graduate Division, Student and Academic Affairs Section, or in the Archivist's Office.
- (3) Attend an orientation meeting on manuscript preparation and filing procedures conducted soon after the start of each quarter (see the Calendar at the beginning of this catalog).

When your final dissertation has been approved by the doctoral committee and you are ready to file it, you must submit the original signature (approval) page and title page to the Graduate Division, Student and Academic Affairs Section, 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 Manuscript Adviser approximately two weeks before the degree is to be awarded. Deadlines for this academic year are:

December 3 for Fall Quarter 1984  
 March 11 for Winter Quarter 1985  
 June 3 for Spring Quarter 1985

## Individual Ph.D. Programs

Although the University of California offers an extraordinary range of established doctoral programs, these cannot meet the needs and specific career goals of every student. The Individual Ph.D. Program therefore makes it possible for superior students to design their own coherent programs of interdisciplinary studies leading to the Ph.D. degree.

To qualify for this program, you must have been a full-time graduate student at UCLA for at least one year, making satisfactory progress toward a doctoral degree. After at least three faculty members have agreed to sponsor your proposal for an individual program of study, you may submit it to the Graduate Council for review. University minimum standards regarding courses, scholarship, residence, and dissertation apply. Further information on this program is available in the Graduate Division, Student and Academic Affairs Section, 1225 Murphy Hall.

## Interdepartmental Degree Programs

In addition to graduate degree programs offered within schools and departments, UCLA also 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.

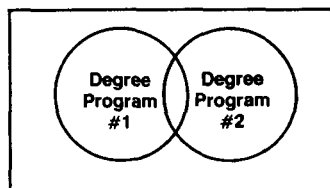
Interdepartmental degree programs which currently lead to advanced degrees are listed below. All are described more fully in Chapter 5 under the College of Letters and Science, with the exceptions of Environmental Science and Engineering which is in the School of Public Health and Neuroscience which is in the School of Medicine. 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.)

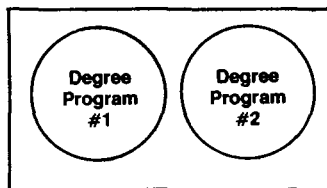
## Concurrent and Articulated Degree Programs

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 Program**  
(Certain courses may apply to both degrees)



**Articulated Degree Program**  
(No credit overlap)

**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:

Architecture and Urban Planning, M.A. — Law, J.D.  
Education, M.A., Ph.D., M.Ed., or Ed.D. — Law, J.D.  
History, M.A. — Library and Information Science, M.L.S.  
Management, M.B.A. — Architecture and Urban Planning, M.A.  
Management, M.B.A. — Computer Science, M.S. (School of Engineering and Applied Science)

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.S.

Management, M.B.A. — Public Health, M.P.H.

**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.

Latin American Studies, Interdepartmental M.A. — Architecture and Urban Planning, M.A.

Latin American Studies, Interdepartmental M.A. — Education, M.Ed. in Curriculum

Latin American Studies, Interdepartmental M.A. — Engineering and Applied Science, M.S.

Latin American Studies, Interdepartmental M.A. — Library and Information Science, M.L.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 the Graduate Division, Student and Academic Affairs Section, for information on designing your own articulated programs.





# Special Programs and Training

## 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.

If you have completed at least a year of graduate study at UCLA and have obtained the necessary approvals, you may sign up for a 501 course with your UCLA adviser. When you have completed the course at USC, your grade will be forwarded to UCLA to be recorded for the 501 course. 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 in the Graduate Division, Student and Academic Affairs Section, should be completed before the start of the term in which the course is offered.

## Intercampus Exchange Program

If you have completed one quarter of graduate study on any campus of the University, 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 on the host campus, and the Dean of the Graduate Division on 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 on another campus.

Although you are considered to be in residence on your home campus, as an Intercampus Exchange Student you have library, health service, and other privileges on the host campus. Grades are transferred to your home campus and entered on your official record.

Applications are available in the Graduate Division, Student and Academic Affairs Section, 1225 Murphy Hall, and should be filed at least four weeks before the beginning of the quarter in which you expect to enter the program.

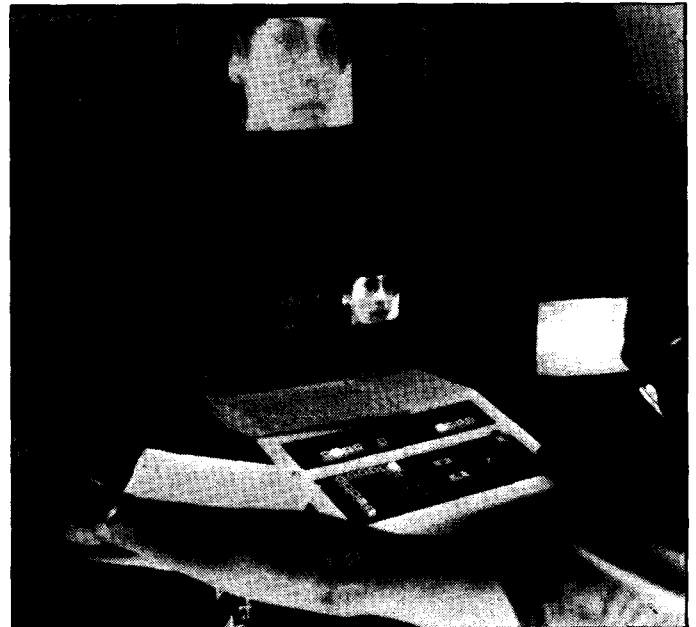
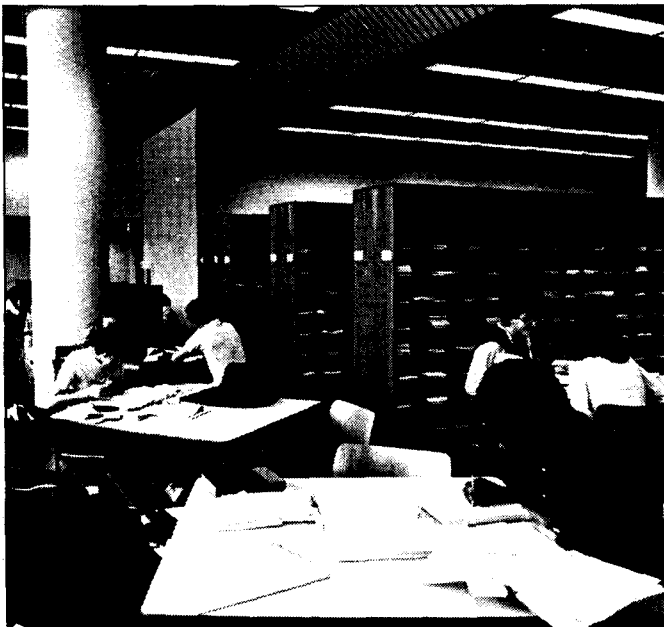
Graduate students may also take advantage of the **Education Abroad Program**, described in Chapter 1 of this catalog.

## Postdoctoral and Visiting Scholars

The University makes opportunities and facilities available to qualified scholars — those holding doctoral degrees or foreign equivalents — to continue advanced study and research under faculty guidance. Postdoctoral Scholar standing, which does not lead to any degree, is limited to a maximum of three years from the date the doctoral degree is awarded. Interested candidates should make advance arrangements with the relevant department or research unit and enroll through the Graduate Fellowship and Assistantship Section.

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 for a limited time, normally no more than one year. Visiting Scholars are distinguished from Postdoctoral Scholars and academic appointees in that they usually have adequate support funds from sources outside the University.

Further information on both Postdoctoral and Visiting Scholars is available in the Fellowship and Assistantship Section, 1228 Murphy Hall.



# 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 on 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.

## 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 quarters 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.

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 Instruction and Degree Requirements. 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 a student or group of students should be made at the Dean of Students Office, 2224 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 about a violation of University policy regarding the conduct of one or more faculty members should be made to the Charges Committee of the Academic Senate, 3125 Murphy Hall.

# Academics

# 4



# 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 your review in the Academic Senate Office, 3125 Murphy Hall.**

## Grades

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

### Undergraduate Students

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

### Graduate Students

A = Superior Achievement  
B = Satisfactorily demonstrates potential for professional achievement  
C = Passed but work does not indicate potential for professional achievement  
F = Failure  
S = Satisfactory (achievement at grade B level or better)  
U = Unsatisfactory  
I = Incomplete  
IP = In Progress  
DR = Deferred Report

**For Undergraduates** — The grade A may be modified by a minus (–) suffix, and the grades B, C, and D by a plus (+) or minus (–) suffix, to either raise or lower your grade-point average. 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 quarter 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 quarter 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, and IP, 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.)

### Computing Your 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. For example, suppose you take three four-unit courses and receive grades of A–, B–, and C+.

| Grade Points | × | Course Units | = | Total Grade Points |
|--------------|---|--------------|---|--------------------|
| A– = 3.7     |   | 4            |   | 14.8               |
| B– = 2.7     |   | 4            |   | 10.8               |
| C+ = 2.3     |   | 4            |   | 9.2                |
|              |   | <u>12</u>    |   | <u>34.8</u>        |

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

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

Only grades earned in regular session or Summer Session at any UC campus are computed in your UCLA grade-point average. Grades earned at another institution or in UCLA Extension do not affect your GPA.

## Class Standing

Undergraduate classification is determined by the number of units completed:

| Classification  | Completed Units |
|-----------------|-----------------|
| Freshman .....  | 0 - 44.9        |
| Sophomore ..... | 45 - 89.9       |
| Junior .....    | 90 - 134.9      |
| 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 coursework for the bachelor's degree at UCLA. A maximum of 208 units is allowed. (If you have credit for English 1 taken Fall Quarter 1979 through Summer Quarter 1984 at UCLA, the minimum and maximum unit requirements are increased to 182 and 210 respectively.) In the School of Engineering and Applied Science, the minimum units allowed are between 185 and 190 (depending on the department program); 213 maximum units are allowed. If you exceed 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.

## Passed/Not Passed (P/NP) Grades

Undergraduate students in good standing who are enrolled for 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 quarter on a P/NP basis (two courses if you have not elected the P/NP option in the preceding quarter). You may not elect this option for Summer Session 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 Calendar at the beginning of this catalog for exact dates); changes after the first two weeks of class require a petition (\$3), available from your college or school.

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 quarter, in addition to any courses offered only for S/U grading 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 Session 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 Calendar at the beginning of this catalog); changes after the first two weeks of class require a petition (\$3), available in the Graduate Division Office.

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

## Incomplete (I) Grades

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 replace it with a passing grade and receive unit credit and grade points, by satisfactorily completing the coursework as specified by the instructor. If the work is not completed by the end of the next full quarter in residence, the grade will lapse to an F, NP, or U as appropriate. Your college or school may extend this deadline in unusual cases.

Petitions for Removal of Incomplete Grade (\$5) are available in your school or department office and should be filed no later than the sixth week of instruction in the next quarter of registration. (Note: Once an I grade is assigned, it remains on your transcript along with the passing grade you may later receive for the course.)

## In Progress (IP) Grades

For certain courses extending over more than one quarter (identified by T1, T2, T3, or T4 in the *Schedule of Classes*), evaluation of student performance is deferred until the end of the final quarter of the course. Provisional grades of IP are assigned in the intervening quarter(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 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 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 was given, including repeated courses, will be used in computing the grade-point average.



## Correction of Grades

All grades except I, IP, and DR 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. See the Appendix for further details and procedures for appealing grades.

## 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 (\$5 each) are available.

## 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 Session (see "Summer Session" in Chapter 1).

### Undergraduates

During the summer or during a quarter 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 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 also 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 Session at any UC campus will be computed into your 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 for evaluation.

**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. No degree credit is given for courses numbered X300 through X499. Remember that concurrent enrollment in Extension and regular session is not permitted.

**Community Colleges** — The maximum number of community college units allowed toward the bachelor's degree is 105 quarter units (70 semester units). The UCLA Admissions Office will not count community college courses beyond 105 quarter units, but you may still receive subject credit 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.)

## Graduates

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 The Master's Degree, Chapter 3.

## Transcript of Record

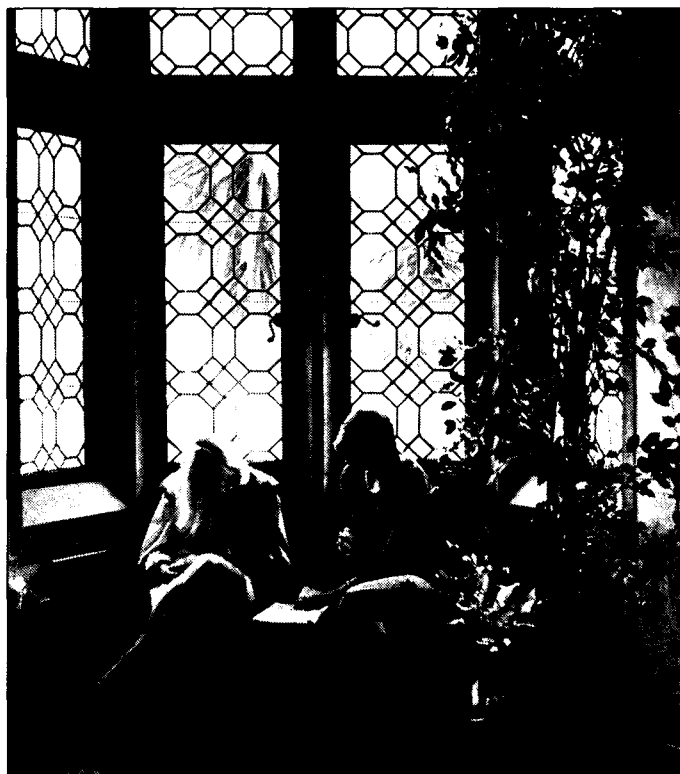
The Registrar prepares and permanently retains a record of each student's academic work. Your transcript reflects all undergraduate and graduate work completed in UCLA regular session and Summer Session. It lists chronologically your courses, units, grades, cumulative grade-point average, transfer credits, and total units.

Unofficial copies of student transcripts are issued several weeks after the end of each quarter (to learn your grades more quickly, leave postcards with your instructors). You should pick up your transcript and inform the Registrar immediately of any omissions or other discrepancies. Student copies are available at no charge from the Registrar's Office at Window A, Murphy Hall (students in the College of Fine Arts, the Schools of Nursing, Public Health, and Architecture and Urban Planning, and undergraduates in the School of Engineering and Applied Science should pick up their transcripts in the respective college or school office). The Registrar verifies current quarter registration and full-time enrollment status for loan forms and other noncampus certifications, beginning on the twelfth day of classes.

To have official transcripts sent to other schools or institutions, fill out a Request for Transcript of Record form at the Registrar's Office (transcripts cannot be issued without your signed request). The fee is \$3 for the first copy and \$1 for each additional transcript requested at the same time. Rush transcript service is available for an additional \$5 charge. Transcripts become available within 48 hours after your last date of attendance. Those required for intercampus transfer within the University are provided at no charge. Transcripts of work completed elsewhere must be requested directly from the campus or institution concerned.

## Certificate of Resident Study for Foreign Students

In addition to a formal transcript, the Registrar may issue a Certificate of Resident Study to a registered foreign student. To obtain this certificate, you must have completed a program of at least nine courses with a minimum 2.0 grade-point average, or have satisfactorily completed a



research project over a period of nine months or more. The chair of your major department recommends the award of this certificate, but you must request it from the Registrar (1105 Murphy Hall) at least a week before the final examination period opens.

## 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. 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 five days) will be issued without fee at the Registrar's Office, 1134 Murphy Hall. After the quarter begins, you may replace lost, destroyed, or mutilated cards at the Registrar's Office for a \$3 fee. You must show proof of identity for verification or replacement cards.

## UCLA Student I.D. Card

This mandatory card with photo is issued in your first term of registration and is valid with the current Reg Card as long as you remain in the same standing (graduate or undergraduate). It is required for all University services and student activities.

You will need a current Reg Card and other valid identification (driver's license, passport, or DMV I.D. card) to get your Student I.D. Card. Distribution hours and location will be announced in the registration issue of the *Daily Bruin*. You may replace lost or destroyed cards at 140 Kerckhoff Hall for a \$3 fee.

## Change of Name or Address

If you change your name or address, notify the Registrar's Office, 1134 Murphy Hall, as soon as possible. Veterans receiving benefits must also notify the Office of Special Services/Veterans Affairs, A255 Murphy Hall.



# Leaving UCLA

## Intercampus Transfer

Undergraduate students registered in a regular session (or those previously registered who have not since registered at any other school) may apply for transfer to another campus of the University. There is a \$35 nonrefundable fee, and deadlines are the same as admission application deadlines (see "Undergraduate Admission" in Chapter 2). Intercampus Transfer Applications and further information on requirements and procedures are available from the Registrar's Office at Window A, Murphy Hall.

Graduate students who wish to enroll as degree candidates at other UC campuses must apply for admission to those Graduate Divisions.

## Absence During a Quarter

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 will be required to complete all coursework. If you cannot complete the work on time because your absence is late in the quarter or prolonged, you may request that the instructors assign an incomplete grade (see "Incomplete Grades" earlier in this chapter).

## One Quarter Absence for Undergraduates

Undergraduate students who have completed at least one quarter at UCLA and fail to register for a quarter may return to the University the following quarter and preregister and preenroll as continuing students. If you plan to attend another institution (including University Extension) during your absence, you should consult your college or school counselor or before enrolling elsewhere. When you return to UCLA you must provide the Admissions Office with a transcript of any courses taken (see "Concurrent Enrollment and Transfer of Credit" earlier in this chapter). If you are absent for two or more consecutive quarters, you are no longer considered a continuing student and must compete for readmission with all other applicants.

## Leave of Absence for Graduate Students

Graduate students in good standing may be granted leaves of absence, normally for periods of one to three quarters, upon approval from the appropriate department and the Graduate Division. Leaves, which may be extended up to five years at the discretion of your department, must be requested before the end of the second week of class. Request forms are available at the Graduate Division, Student and Academic Affairs Section, 1225 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. Leaves of absence as described here do not apply to undergraduates.

Graduate students who fail to register for a quarter 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 submitting a written notice, together with your current Registration Card, Student I.D. Card, and a \$10 service charge, to the Registrar's Office, 1134 Murphy Hall.

Undergraduates who return to the University for the following quarter may preregister and preenroll as continuing students. If you are absent longer than one quarter, you must apply for readmission. If you cancel in your first quarter at UCLA, you must reapply for admission when you return.

Graduate students who cancel their registration and do not receive 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 quarter, you need to file a Notice of Withdrawal, available from your college, school, or Graduate Division office. Submit your Registration Card and Student I.D. Card along with the form or a fee will be deducted from any refund.

When you withdraw officially during the first five weeks 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

Claims for refund must be presented within the academic (fiscal) year to which the claim is applicable. See the current *Schedule of Classes* for further details.

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 quarter 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.

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 quarter. 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 quarter following withdrawal, you may preregister and preenroll as a continuing student. If you return later than the following quarter, you must apply for readmission.

**Graduate students** — If you do not complete a quarter, 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 ten UCLA freshmen eventually receive a baccalaureate degree, either from UCLA or from another campus or institution. According to a recent survey of UCLA alumni, two thirds of all UCLA baccalaureate recipients go on to graduate school. For information on academic requirements for graduation, see "Undergraduate Degree Requirements" in Chapter 2.

### Undergraduate Students

The awarding of the bachelor's degree does not happen automatically but is the culmination of a multistep procedure which involves your participation.

(1) **Student Data Card** is included in your registration packet. Check the information on this card each quarter and revise your expected date of graduation if incorrect.

(2) **Degree Candidate Card** is also part of your registration packet. Complete and file this card as a junior (minimum 90 quarter units earned) and each quarter thereafter, to let the Registrar's Office know when you intend to graduate. Cards filed after the fourth week of instruction are subject to a fee. See the Calendar at the beginning of this catalog for filing dates.

(3) **Degree Checks** are conducted by your school or college and the Registrar's Office to inform you of degree requirements remaining to be satisfied. If you have filed the Degree Candidate Card, you should receive your first degree check ("Status in Reference to the BA/BS Degree") about three quarters before you graduate and an updated one each subsequent quarter. Consult your college or school, or the Registrar's Office at Window A, Murphy Hall, if you have any questions or problems.

(4) **Announcement of Candidacy** is posted on the Registrar's bulletin board about four weeks into the quarter. Although this is not a guarantee of graduation, your name should appear on the list posted in your final quarter. If not, inform the degree clerk at Window A.

(5) **Important Degree Notice** is mailed to you only if your records indicate you will not have satisfied all degree requirements by the end of your last quarter. If you receive such a notice, contact your degree clerk as soon as possible for further information and instructions.

(6) **Certificate of Completion** is official proof that you have graduated. It is sent to you four to five weeks after your final quarter ends if you have successfully completed all courses that quarter and met all degree requirements.

### 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. A **Certificate of Completion**, certifying the award of the degree, is issued to all students four to five weeks after the end of the quarter in which all degree requirements are met. For full details on degree requirements and procedures for graduate students, see Chapter 3 on Graduate Study.

### Diplomas

Diplomas for both undergraduates and graduate students are not distributed at Commencement but become available six to eight weeks after graduation. The Registrar's Office will notify you by mail when your diploma is ready. There is no diploma fee, although if the original is lost or stolen, there is a \$25 charge for a duplicate diploma (\$38 for Law, Medicine, or Dentistry). If you wish, the diploma can be sent to you by certified mail at a cost of \$3 (\$6 outside the U.S.).

## Commencement

Commencement exercises honoring candidates for undergraduate and graduate degrees are held in mid-June. Students who have earned degrees in Summer Session or any quarter during the academic year are welcome to participate.

On Commencement Day many departments, schools, and colleges hold informal gatherings at which prizes and honors are awarded and students and their families meet faculty members. At 3 p.m. all students, faculty, and guests gather in Drake Stadium for formal exercises and the conferring of degrees. This colorful pageant features an address by the Chancellor, student speakers, and recognition of candidates who have achieved high academic distinction.

Academic regalia (caps, gowns, and hoods) become available through ASUCLA two weeks prior to Commencement. The rental fee is \$13 for bachelor's candidates; \$22 for master's and doctoral candidates. For further information, consult the *Commencement Handbook*, which is mailed to each candidate by the end of May. You may purchase graduation announcements at the Campus Portrait Studio in ASUCLA Graphic Services (150 Kerckhoff Hall).



# Colleges and Schools

## Organization

This catalog is organized into the 13 colleges and schools which are the University's component parts. Each of the following chapters is devoted to a single college or school. Each is introduced by general information on scope and emphasis, the academic departments it encompasses, admission standards, and requirements for undergraduate and graduate degrees.

The overall college or school description is followed, in alphabetical sequence, by its departmental listings. Here you will find faculty rosters, departmental degree requirements, requirements for the major, and descriptions of all courses (lower division, upper division, and graduate) offered by that department or interdepartmental degree program. (If you are not certain which college or school offers a particular program, see the organization chart on the inside front cover.)

Since the great majority of UCLA's students and degree programs are housed within the College of Letters and Science, that unit is presented first. It is followed by the other general campus units offering undergraduate programs: the College of Fine Arts and the School of Engineering and Applied Science. The graduate professional schools of Architecture and Urban Planning, Education, Law, Library and Information Science, Management, and Social Welfare follow in alphabetical sequence. The health science disciplines, which include the Schools of Dentistry, Medicine, Nursing, and Public Health, are the final chapters before the Appendix.

## Courses of Instruction

Because the catalog must be prepared well in advance of the academic year it covers, it may not reflect recent changes in courses, curricula, and faculty listings. For more current information, consult the quarterly *Schedule of Classes* available in the Students' Store shortly before the beginning of each new quarter.

Courses listed in this catalog represent the total nonclinical offerings of each college, school, and department at UCLA. Certain courses listed may not be offered every quarter or every year. Where possible, the quarters in which a course is offered have been indicated in parentheses after the instructor's name (F—Fall, W—Winter, Sp—Spring, Sum—Summer).

## Academic Credit

A course has a credit value of four quarter units unless otherwise specified in parentheses after the course title.

A listing such as History 1A-1B-1C, Introduction to Western Civilization, indicates three full four-unit courses, 1A, 1B, and 1C. The listing Music 11A-11F, Musicianship (2 units each), indicates six half-courses at two units each. A course may not be prerequisite to the next in the series unless so designated, but since policies vary among departments, you should check with the departmental counselor or adviser. Credit for a specific course may be dependent on completion of a subsequent course, as noted in the description.

## Prerequisites

Education is a building process. It is difficult or impossible to learn advanced principles without first understanding elementary ones. Therefore, one or more lower division courses may be prerequisite to taking another lower division or an upper division course. Prerequisites should be noted carefully — it is your responsibility to meet these requirements in preparation for more advanced work. A course has no prerequisites if none is designated in departmental requirements or course descriptions.

## 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 do not apply toward graduate degrees.

**Upper division courses (numbered 100-199)** are open to all students who have met the prerequisites indicated in 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.

**Courses numbered 98 and 198** are group study courses set up on a one-time basis in subjects for which no regular courses have been established. Because they vary in content and are offered irregularly, they are not listed in the catalog.

**Individual special studies courses (numbered 199, 199F, and 199H)** involve supervised independent study and research requiring adequate background in the subject proposed for study. These courses 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 the department chair.

Undergraduates may enroll in a maximum of eight units of 199, 199F, or 199H courses per quarter. After completing 16 units of 199 or 199H credit on a letter grade basis, you must take any additional 199 or 199H courses on a Passed/Not Passed basis. Independent field study courses (199F) 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, or 199H 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 examinations; 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 other institutions.) See individual departmental listings for specific limitations on 500-series courses.

## University Extension Courses

In general, you may not attend University of California 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" earlier in this chapter.

\*These definitions do not apply to the School of Law, which maintains its own course numbering system.

## 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 University 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, Byzantine Civilization is offered by the Department of Classics (Classics M170A) and the Department of History (History M122A). You will find that particular course listed under both departments in Chapter 5 on the College of Letters and Science.

## Faculty Rosters

Faculty rosters in each academic department are listed in the following order:

- Professors
- Associate Professors
- Assistant Professors
- Lecturers
- Adjunct and Visiting faculty in each of these four Academic Senate classifications

In the case of interdepartmental degree programs, all participating faculty members have appointments in regular academic departments. Participating faculty are listed in the above order, with the home department or specialty of each member indicated in parentheses.

# College of Letters and Science

Raymond L. Orbach, Provost

# 5



"'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 22,000 students and 900 faculty, UCLA's College of Letters and Science is the largest academic unit in the UC system. Underscoring the "multiversity" concept, its four divisions of humanities, physical sciences, social sciences, and life sciences provide the academic framework for more than 70 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 participate in the creation of knowledge through research.

# College of Letters and Science

## A316 Murphy Hall, 825-1965

In 1982 the College of Letters and Science was reorganized under the leadership of a provost. The Division of Undergraduate Programs and Services, under the direction of an associate provost, provides a network of student assistance within its two offices: College Counseling Service and Preparatory Programs. The heart of the college lies in its academic departments which are grouped in four divisions: humanities, physical sciences, social sciences, and life sciences, each division headed by a dean.

## Undergraduate Study

The degree programs in the College of Letters and Science are designed to expose students to a variety of intellectual possibilities by combining a wide distribution of courses and the opportunity to specialize in one particular field. To this end, students are required to select lower division courses that deal with general fundamentals of human knowledge. In the more diverse offerings of the upper division courses students are relatively free to concentrate attention upon one field of interest: their 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). The pursuit of such definite courses of study often requires knowledge of courses known as *prerequisites*. With the assistance of a departmental adviser, you are expected to select lower division courses related to the advanced studies you propose to follow.

## Counseling Services

The College Counseling Service is located in A316 Murphy Hall. A staff of academic counselors is readily available to assist you with questions pertaining to academic regulations and procedures, selection of courses, options and alternatives, etc.

Many questions can be answered at the college information window or by phoning the Information Desk at 825-1687 or 825-1965. If you would like to confer with a counselor regarding overall degree requirements, academic difficulty, program planning, or assistance in selecting a major, you can arrange an appointment by calling 825-3382. Group counseling sessions on a variety of academic issues are offered throughout the year.

For information on the Learning Resource Center, ASK Counselors, and Preparatory Programs, see Chapter 2.

## Choosing a Major

Entering freshmen who are unsure about specific academic goals may request to be admitted to the college as an "undeclared major." These students often take introductory courses in the natural sciences, social sciences, and humanities to search for an area that most excites their interest (see "Choosing Your Major" in Chapter 2 of this catalog).

All students with 90 or more units toward a degree are expected to declare 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 and file the form at the College Counseling Service Office.

There are a variety of sources that can help you with academic planning, including the College Counseling Service in A316 Murphy Hall (825-1687 or 825-1965) and the Placement and Career Planning Center (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. For further suggestions, see "Advising and Academic Assistance" in Chapter 2.

## 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 with the Letters and Science counseling staff for confirmation of the requirements you need to fulfill. "Degree checks" are available by appointment. Departmental counselors can advise you regarding progress and

completion of your major requirements. A final audit of degree requirements will be sent to you by the Registrar's Office toward the end of your studies. However, it is important that you maintain an accurate assessment of progress toward your degree by utilizing college resources.

## 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 quarter.

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 outside occupation requiring 50 percent time or more.

## Letters and Science 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). A departmental major may be increased by three more upper division courses (12 units) in other departments with the approval of the Executive Committee of the college. 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

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 73 departmental majors currently offered by the college.

## Majors and Degrees Offered

|  |   |
|--|---|
| African Area Studies (M.A.)                              | Germanic Languages (C.Phil., Ph.D.)                           |
| African Languages (B.A.)                                 | Greek (B.A., M.A.)  |
| Afro-American Studies (B.A., M.A.)                       | Hebrew (B.A.)   |
| American Indian Studies (M.A.)                           | Hispanic Languages and Literatures (C.Phil., Ph.D.)           |
| Ancient Near Eastern Civilizations (B.A.)                | History (B.A., M.A., C.Phil., Ph.D.)                          |
| Anthropology (B.A., M.A., Ph.D.)                         | Indo-European Studies (C.Phil., Ph.D.)                        |
| Applied Linguistics (C.Phil., Ph.D.)                     | Islamic Studies (M.A., C.Phil., Ph.D.)                        |
| Applied Mathematics (B.S.)                               | Italian (B.A., M.A., C.Phil., Ph.D.)                          |
| Arabic (B.A.)  | Italian and Special Fields (B.A.)                             |
| Archaeology (M.A., Ph.D.)                                | Japanese (B.A.)   |
| Asian American Studies (M.A.)                            | Jewish Studies (B.A.)   |
| Astronomy (B.S., M.S., M.A.T., Ph.D.)                    | Kinesiology (B.S., M.S., Ph.D.)                               |
| Atmospheric Sciences (B.S., M.S., C.Phil., Ph.D.)        | Latin (B.A., M.A.)  |
| Biochemistry (B.S., M.S., C.Phil., Ph.D.)                | Latin American Studies (B.A., M.A.)                           |
| Biology (B.S., M.A., C.Phil., Ph.D.)                     | Linguistics (B.A., M.A., C.Phil., Ph.D.)                      |
| Chemistry (B.S., M.S., C.Phil., Ph.D.)                   | Linguistics and Computer Science (B.A.)                       |
| Chemistry/Materials Science (B.S.)                       | Linguistics and East Asian Languages and Cultures (B.A.)      |
| Chicano Studies (B.A.)                                   | Linguistics and English (B.A.)                                |
| Chinese (B.A.)   | Linguistics and French (B.A.)                                 |
| Classical Civilization (B.A.)                            | Linguistics and Italian (B.A.)                                |
| Classics (B.A., M.A., C.Phil., Ph.D.)                    | Linguistics and Philosophy (B.A.)                             |
| Communication Studies (B.A.)                             | Linguistics and Psychology (B.A.)                             |
| Comparative Literature (M.A., C.Phil., Ph.D.)            | Linguistics and Scandinavian Languages (B.A.)                 |
| Cybernetics (B.S.)                                       | Linguistics and Spanish (B.A.)                                |
| East Asian Languages and Cultures (M.A., C.Phil., Ph.D.) | Luso-Brazilian Language and Literatures (M.A.)                |
| East Asian Studies (B.A.)                                | Mathematics (B.A., M.A., M.A.T., C.Phil., Ph.D.)              |
| Economics (B.A., M.A., C.Phil., Ph.D.)                   | Mathematics/Applied Science (B.A.)                            |
| Economics/Business (B.A.)                                | Mathematics/Computer Science (B.S.)                           |
| Economics/International Area Studies (B.A.)              | Mathematics/System Science (B.S.)                             |
| Economics/System Science (B.S.)                          | Microbiology (B.A., M.A., Ph.D.)                              |
| English (B.A., M.A., C.Phil., Ph.D.)                     | Molecular Biology (Ph.D.)                                     |
| English/Greek (B.A.)                                     | Near Eastern Languages and Cultures (M.A., C.Phil., Ph.D.)    |
| English/Latin (B.A.)                                     | Near Eastern Studies (B.A.)                                   |
| Ethnic Arts (B.A.)                                       | Philosophy (B.A., M.A., C.Phil., Ph.D.)                       |
| Folklore and Mythology (M.A., Ph.D.)                     | Physics (B.S., M.S., M.A.T., Ph.D.)                           |
| French (B.A., M.A., C.Phil., Ph.D.)                      | Political Science (B.A., M.A., C.Phil., Ph.D.)                |
| French and Linguistics (B.A.)                            | Portuguese (B.A.)   |
| General Chemistry (B.S.)                                 | Psychobiology (B.S.)  |
| General Physics (B.A.)                                   | Psychology (B.A., M.A., C.Phil., Ph.D.)                       |
| Geochemistry (M.S., C.Phil., Ph.D.)                      | Quantitative Psychology (B.A.)                                |
| Geography (B.A., M.A., C.Phil., Ph.D.)                   | Religion, Study of (B.A.)                                     |
| Geography/Ecosystems (B.A.)                              | Romance Linguistics and Literature (M.A., C.Phil., Ph.D.)     |
| Geology (B.S., M.S., C.Phil., Ph.D.)                     | Russian Civilization (B.A.)                                   |
| Geology — Engineering Geology (B.S.)                     | Russian Linguistics (B.A.)                                    |
| Geology — Geochemistry (B.S.)                            | Scandinavian Languages (B.A., M.A.)                           |
| Geology — Nonrenewable Natural Resources (B.S., M.S.)    | Slavic Languages and Literatures (B.A., M.A., C.Phil., Ph.D.) |
| Geology — Paleobiology (B.S.)                            | Sociology (B.A., M.A., C.Phil., Ph.D.)                        |
| Geophysics — Applied Geophysics (B.S.)                   | Spanish (B.A., M.A.)  |
| Geophysics and Space Physics (B.S., M.S., Ph.D.)         | Spanish and Linguistics (B.A.)                                |
| German (B.A., M.A.)                                      | Teaching English as a Second Language (M.A.)                  |



## 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 24 interdepartmental majors. Although most lead to bachelor's degrees, there are some which lead to graduate degrees only. Check the chart 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  
 Chicano Studies  
 Communication Studies  
 Comparative Literature  
 Cybernetics  
 East Asian Studies  
 Economics/System Science  
 Ethnic Arts  
 Folklore and Mythology  
 Indo-European Studies  
 Islamic Studies  
 Latin American Studies  
 Mathematics/Computer Science  
 Mathematics/System Science  
 Molecular Biology  
 Near Eastern Studies  
 Religion, Study of  
 Romance Linguistics and Literature

You can find a detailed description of each of these majors under their respective headings later in this chapter.

## 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 quarters of work (nine courses) at the University with a grade-point average of 3.4 or higher, you may plan an individual major. The consent of the Dean, Division of Honors, 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 memorandum column of your official transcript; your diploma will read "Individual Field of Concentration." For further details about individual majors, contact the Division of Honors in A311 Murphy Hall (825-1553).

## Supplemental Programs

The college also offers nine 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 programs must be taken jointly with an organized departmental or interdepartmental major:

African Studies  
 Asian American Studies  
 Business and Administration  
 Computing, Program in  
 Diversified Liberal Arts  
 International Relations  
 Law and Society  
 Urban Studies or Organizational Studies  
 Women's Studies

Detailed descriptions of each program are given under their respective headings later in this chapter.

## Double Majors

If you are in good academic standing, you may be permitted to have a double major consisting of two departmental majors in this college. They must both be completed within the maximum limit of 208/210 units, and you must obtain the approval of both departments.

With few exceptions, double majors in the same department are unacceptable. If the majors are not in the same division of the college,

you must designate one of the two majors as the principal one for the purpose of satisfying breadth or 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 breadth requirements. Courses required for the secondary major (including preparation for the major) may satisfy any set of breadth 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 208/210-unit limit. Petitions must be approved by the department or committee in charge of the new major and forwarded to the college for final approval. Admission to certain majors may be closed or restricted; changes are normally not permitted if you are on probation or have begun your last quarter.

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 recommended study load for undergraduate students in the College of Letters and Science is 12 to 16 units (three to four courses) per quarter. Three courses are recommended for students in the first quarter of the freshman year. All other students who have a C average or better may carry four and one-half courses without petition. After the first quarter, you may petition to enroll in as many as five courses if you attained at least a B average the preceding quarter in a program of at least three graded courses. First-quarter 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 quarters at UCLA.

## Requirements for the Bachelor's Degrees

Each student must meet four levels of requirements for the Bachelor of Arts or Bachelor of Science degree: University requirements, college requirements, department requirements (including preparation for the major), and major requirements. For details on the latter two levels, see the department and major of your choice.

## University Requirements

For information on the Subject A and American History and Institutions requirements, see

"Undergraduate Degree Requirements" in Chapter 2.

## College Requirements

The College of Letters and Science has six types of requirements which must be satisfied for the award of the degree: unit, major and scholarship, residence, foreign language (effective Fall Quarter 1986), English composition, and breadth or general education requirements.

## Unit Requirements

You must satisfactorily complete for credit a minimum of 180 units (45 courses) for the bachelor's degree. A maximum of 208 units is allowed. After having credit for 208 units, you will not be permitted to continue except in rare cases approved by the college. If you have credit for English 1 taken Fall Quarter 1979 through Summer Quarter 1984 at UCLA, you will be required to complete satisfactorily 182 units (45½ courses); a maximum of 210 units is then allowed. If you have advanced place-

ment (transfer) credit, you may petition to exceed the 208/210-unit maximum by the amount of this credit.

For students entering in Fall Quarter 1982 or later, at least 72 units (18 courses) of the above requirement must be upper division UCLA courses (numbered 100 to 199 only). Students entering prior to Fall Quarter 1982 must complete at least 52 units (13 courses) in upper division.

### Credit Limitations

**Note:** Transfer students with credit from other institutions (advanced standing credit) will receive an evaluation 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 Letters and Science counselor regarding these limitations.

The following credit limitations apply for all students enrolled in the college:

(1) After completing 105 quarter units (26¼ courses) toward the degree in all institutions attended, you will be allowed no further unit credit for courses completed at a **community college**.

(2) No more than four units in **physical education** activities courses may be applied toward the bachelor's degree.

(3) 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 University Extension unless you have petitioned the college for approval before enrollment. Such petitions are rarely granted.

(4) No more than 12 units of **music and/or dance performance** courses may be applied toward the bachelor's degree whether taken at UCLA or another institution. Dance 70 through 76B and 171B through 176B and Music 80 and 81 must be taken on a Passed/Not Passed basis and will not be applied within the limits of Passed/Not Passed enrollment. The above music courses are limited to one per quarter. For further information on these limits, see "Passed/Not Passed Grades" in Chapter 4.

(5) Credit earned through the **College Level Examination Program (CLEP)** will not be applied toward the bachelor's degree.

(6) **Advanced Placement (AP) Test** credit will not be applied toward a degree unless you had less than 36 units of credit at the time of the examination.

(7) No more than 24 units of credit in **aero-space studies, military science, or naval science** may be applied to the 180/182-unit minimum required for the degree.

(8) No more than two courses (eight units) of credit may be taken per quarter 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.

(9) For students entering Fall Quarter 1978 or later, no unit credit will be granted toward the degree for **Chemistry 2** (taken Fall Quarter 1978 or later at UCLA or another institution) if one year of high school chemistry was completed with a grade of C or better\*. The maximum deduction will be four units. (Students enrolled in UCLA before Fall Quarter 1978 may take Chemistry 2 with full unit and grade-point credit, without petition.)

(10) For students entering Fall Quarter 1978 or later, no unit credit will be granted toward the degree for **foreign language courses** (taken Fall Quarter 1978 or later at UCLA or another institution) equivalent to quarter level one and/or two if two years of the same language were completed in high school with grades of C or better\*. The maximum deduction will be eight units. (Students enrolled in UCLA before Fall Quarter 1978 may repeat high school language with full unit and grade-point credit, without petition.)

**\*Note: Effective Fall Quarter 1984 and thereafter, units and grade points will be deducted at graduation for the duplicated chemistry and language courses specified above.**

(11) No credit will be allowed for more than one lower division course in **statistics** or for more than one sequence of such courses whether taken at UCLA or another institution.

(12) 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.

### Scholarship and Major Requirements

You must have attained 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 have satisfied both the course and scholarship requirements of a major (including preparation for the major) in the College of Letters and Science.

### Residence Requirements

For students entering UCLA's College of Letters and Science in Fall Quarter 1982 or later, 68 units 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 Session. While enrolled in the college you must complete at least ten upper division courses (40 units), including six courses in the major. For students entering UCLA before Fall Quarter 1982, the residence requirements are as indicated in the 1981-82 *UCLA Undergraduate Catalog*. These residence requirements apply to all students, both continuing and transfer.

### Foreign Language Requirements

The College of Letters and Science does not have a collegewide requirement for foreign language at this time, but one will become effective in Fall Quarter 1986 (see "General Education Requirements" below). Specific departments or majors within the college, however, may impose such requirements at present. Credit will not be allowed for a less advanced course in grammar and/or composition after you have completed a more advanced course. For other credit limitations, see item 10 under "Credit Limitations" above.

College credit for a foreign student's native language and literature is allowed for (1) courses taken in native colleges and universities or (2) upper division and graduate courses taken at the University of California or another English-speaking institution of approved standing.

### English Composition Requirement

**Note:** You must complete the University's Subject A requirement prior to completing the college's English Composition requirement.

You may satisfy the English Composition requirement with one course from English 3, 4, Humanities 2A, 2B, 2C. The course must be taken for a letter grade, and you must receive at least a C; a grade of C- is not acceptable. Courses in this group may be applied toward the humanities breadth requirement if they are not used to satisfy the English Composition requirement.

The composition requirement may also be satisfied by scoring 4 or 5 on the CEEB Advanced Placement Test in English or by passing the English Department's proficiency examination. Students scoring 660 or better on the CEEB English Achievement Test are eligible for this proficiency exam.

You should satisfy the composition requirement within the first three quarters of residence.

**Transfer Students:** If you have completed an English composition course graded Passed, you may take the English proficiency examination by presenting a letter of authorization from the college to the Freshman Writing Program. If you have received a grade of C or better in a college composition course that has not satisfied the requirement, you may be eligible for the proficiency examination after a Freshman

Writing Program interview. Eligible students must register for the examination in the English Department before the first day of enrollment for the quarter.

If you have credit for 90 or more units and have not satisfied the requirement, you are expected to include an acceptable composition course in the Study List of your first quarter of residence in the college. If you are required to take English 1 to satisfy the Subject A requirement, you should, upon completion of that requirement, take an acceptable composition course in your second quarter of residence.

**English as a Second Language (ESL) Students:** Students from abroad who have learned English as a foreign language and who were taught in a language other than English in secondary school may satisfy this requirement by completing English 3 or English as a Second Language 36 or 106J with a grade of C or better (C- or a Passed grade is not acceptable).

Units which Admissions has evaluated as English composition, but which are not sufficiently advanced to satisfy the college requirement, may be applied on the Letters and Science breadth requirement as humanities only if specifically approved by the college. Advanced Placement English with a grade of 3 has such approval and requires no petition. ESL 33A, 33B, 33C, and advanced standing English for foreign students courses may not be applied toward the humanities breadth requirement.

## General Education and Breadth Requirements

The college breadth requirements have been superseded by a new set of general education (GE) requirements effective Fall Quarter 1983. Students in the College of Letters and Science who completed **fewer than 16 quarter units** before Fall Quarter 1983 must meet the following general education requirements. Those who completed **16 or more units** before Fall Quarter 1983 may meet either these requirements or any of the previous breadth plans for which they are eligible (see "Breadth Requirements" following this section). Effective Fall Quarter 1986, all entering students will be required to fulfill the general education requirements. For assistance in determining the set of requirements for which you will be held responsible, contact a college counselor.

### I. General Education Requirements

The new general education requirements represent a departure in philosophy from the previous breadth requirements. They are intended to define, in a more structural way than breadth, a "core" of knowledge necessary to a liberal arts education. Although majors are classified in the same four divisions of the col-

lege as for breadth, GE requirements specify a limited number of courses within smaller subgroups. This arrangement is designed to provide a conceptual overview of core areas without a formal core curriculum.

The new requirements consist of two parts. You must (A) demonstrate basic proficiency in quantitative reasoning, foreign language, and English composition and (B) complete course requirements in each of the four divisions of the college: humanities, physical sciences, social sciences, and life sciences.

#### (A) Basic Proficiency Levels

Note: All courses taken to satisfy GE proficiency requirements must be completed with a grade of Pass or C or better.

(1) *Quantitative Reasoning:* May be satisfied by achieving an SAT mathematics score of 600, a CEEB mathematics score of 550, or by completing one of the following courses: Anthropology 186A; Computer Science 10C, 10F, or 10S; Economics 40; Mathematics 2 or any higher numbered course except 38A-38B and 104; Philosophy 31; Political Science 6; Public Health 100A, 100B, 100C, 100D; or Sociology 18.

(2) *Foreign Language:* (This requirement becomes effective for students entering Fall Quarter 1986 and thereafter.) May be satisfied by passing college-level language instruction through level three or by achieving a score indicating competence equivalent to level three on the Educational Testing Service (ETS), Advanced Placement (AP), or UCLA departmental placement examination.

(3) *English Composition:* Same as the college English Composition requirement described above. Transfer students should consult the college concerning application of transfer courses toward these requirements and read individual course descriptions to avoid possible duplication. Local community college counselors have lists of courses applicable toward UCLA requirements.

#### (B) Course Requirements

As specified on the chart labeled "Courses to Fulfill GE Requirements" on the next page, you must pass four courses from 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.

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 of which is in their major subgroup. 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.

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

### 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  
Arabic  
Chinese  
Classics  
English  
English/Greek  
English/Latin  
Ethnic Arts  
French  
German  
Greek  
Hebrew  
Italian (including Italian and Special Fields)  
Japanese  
Latin  
Portuguese  
Scandinavian Languages  
Slavic Languages and Literatures  
Spanish

##### A2: Philosophy

Philosophy

##### A3: Language and Linguistics

French and Linguistics  
Linguistics (including all Linguistics and special fields majors)  
Russian Linguistics  
Spanish and Linguistics

##### A4: Culture and Civilization

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

(continued on page 76)

## Courses to Fulfill GE Requirements

### (A) Humanities

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

#### (1) Literature

Classics 141, 142, 143, 144  
 East Asian Languages and Cultures 140A, 140B, 140C, 141A, 141B  
 English 10A, 10B, 10C, 70, 75, 80, 85, 90, 100A, 100B, 100C, 100D, 102  
 French 12, 114A, 114B, 114C, 144A, 144B, 144C  
 German 101A, 101B, 101C  
 Humanities 1A, 1B, 1C, 2A, 2B, 2C  
 Italian 50A, 50B  
 Portuguese 120A, 120B, 121A, 121B, 140A, 140B  
 Russian 100, 119, 120, 125, 126  
 Spanish 120A, 120B, 136A, 136B, 160A, 160B, 160C

#### (2) Philosophy

Philosophy 1, 2, 4, 5A, 6, 7, 8, 10, 21, 22

#### (3) Language and Linguistics

Linguistics 1, 100  
 Language: Formal University foreign language instruction at level four or higher; no more than one course at level four or higher may be used for breadth

#### (4) Culture and Civilization

Classics M70  
 East Asian Languages and Cultures 40A, 40B, 42, 46  
 Folklore and Mythology 15, 101  
 German 100A, 100B, 100C  
 Italian 42A, 42B  
 Near Eastern Languages and Cultures: Berber 130, Iranian 169, 170, Jewish Studies 110, Turkic Languages 160A, 160B  
 Slavic Languages and Literatures: Slavic 99, Bulgarian 99, Russian 99, Romanian 99  
 Spanish and Portuguese M42, M44

#### (5) The Arts

Art 22, 30A, 50, 51, 54, 55, 56  
 Classics 151A, 151B, 151C, 151D  
 Dance 134A, 134B, 181A, 182B, 187A  
 Music (no more than one course from a single grouping):  
 (a) 2A, 2B, 137A, 137B, 138  
 (b) 130, 133, 134, 135A, 135B, 135C, 139, 188A through 188F, 189  
 (c) 131A, 131B, 140A, 140B, 140C, 141, 145, 152, 157  
 (d) 144  
 Theater Arts 5A, 5B, 5C, 102A, 102B, 102D, 102E, 104D, 104E, 104F, 106A through 106E

### (B) Physical Sciences

Three courses from the following:

Astronomy 3, 3H, 4, 81, 82  
 Atmospheric Sciences 2, 3, 6  
 Chemistry 2, 11A, 11B  
 Earth and Space Sciences 1 or 100, 2, 3, 5, 9, 15  
 Engineering 11  
 Geography 1  
 Mathematics 3A, 3B, 3C, 3E, 31A, 31B, 32A, 32B  
 Physics 3A, 3B, 3C, 6A, 6B, 6C, 8A through 8E, 10, 11

### (C) Social Sciences

Four courses, two from each group:

#### (1) Historical Analysis

Two courses from a single sequence are recommended:

Classics 10, 20  
 Economics 107  
 History 1A, 1B, 1C, 2, 3A, 3B, 3C, 4, 6A, 6B, 6C, 7A, 7B, 8A, 8B, 8C, 9A, 9B, 9C, 9D, 10A, 10B  
 Political Science 111A, 111B, 111C, 114A, 114B

#### (2) Social Analysis

Anthropology 5 or 22, 6, 33  
 Communication Studies 10  
 Economics 1 and/or 2 or 100, 110  
 Geography 3, 4  
 Political Science 1, 20, 21, 50  
 Psychology 10  
 Sociology 1 or 101

### (D) Life Sciences

Three courses from the following:

Anthropology 1 and/or 2 or 11, 126P  
 Biology 2, 5, 6, 7, 8, 10, 13, 20, 25  
 Earth and Space Sciences 115  
 Geography 2, 5  
 Kinesiology 12, 13, 14  
 Microbiology 6  
 Psychology 15

Honors Collegium: Inquire at the Division of Honors (A311 Murphy Hall) for information on courses which satisfy any of the areas of the general education requirement.

**(B) Physical Sciences**

Applied Mathematics  
Astronomy  
Atmospheric Sciences  
Biochemistry  
Chemistry  
Chemistry/Materials Science  
Cybernetics  
Economics/System Science  
General Chemistry  
General Physics  
Geology (including all specialization options)  
Geophysics (including all specialization options)  
Mathematics  
Mathematics/Applied Science  
Mathematics/Computer Science  
Mathematics/System Science  
Physics

**(C) Social Sciences***C1: Historical Analysis*

History

*C2: Social Analysis*

Afro-American Studies  
Anthropology  
Chicano Studies  
Communication Studies  
East Asian Studies  
Economics (including all specialization options except Economics/System Science)  
Geography  
Geography/Ecosystems  
Latin American Studies  
Political Science  
Sociology

**(D) Life Sciences**

Biology  
Kinesiology  
Microbiology  
Psychobiology  
Psychology  
Quantitative Psychology

**II. Breadth Requirements**

Under the Letters and Science breadth requirements, you must satisfactorily complete nine courses (36 units) distributed among the three divisions outside the division of your major, with at least two full courses (eight units) in each division. (See the chart labeled "Courses to Fulfill Breadth Requirements" on the next page.) Acceptability of courses to meet these requirements is subject to the following general conditions:

(1) All language courses level four or above (other than conversational courses) may be applied as humanities courses. Level one, two, and three courses may be applied provided that you have completed the level four course in the same language. Breadth requirement credit for courses in languages not offering level four courses is contingent on the approval of the college. For other limitations, see Credit Limitation number 10 under "Unit Requirements" above.

(2) The course used to satisfy the English Composition requirement may not also be applied toward breadth requirements.

(3) Courses required to satisfy the major or other courses taken in the major department may not be applied toward breadth requirements. However, courses outside the division of the major which are required as preparation for that major may be applied. For information on satisfying breadth requirements if you are following a double major, see the section on "Double Majors" earlier in this chapter.

(4) Courses in other colleges and schools at UCLA may be used to satisfy breadth requirements if approved by the Letters and Science Executive Committee.

(5) Freshman and sophomore seminars taught in Letters and Science departments may be applicable. For students entering in Fall Quarter 1981 or later, a maximum of eight units of freshman and sophomore seminar credit may be applied toward breadth requirements according to quarterly determination by the college. Courses in the 300 and 400 series may not be applied; courses numbered 199 and in the 200 series may be applied only by petition approved by the college.

(6) Council on Educational Development (CED) courses are not applicable on breadth. Consult the college counselors regarding application of CED courses taken before Fall Quarter 1978.

Transfer students should consult the college concerning application of advanced standing courses on breadth requirements.

**Breadth Requirement Groupings by Major****(A) Humanities**

African Languages  
Ancient Near Eastern Civilizations  
Arabic  
Chinese  
Classical Civilization  
Classics  
English  
English/Greek  
English/Latin  
Ethnic Arts  
French  
French and Linguistics  
German  
Greek  
Hebrew  
Italian  
Italian and Special Fields  
Japanese  
Jewish Studies  
Latin  
Linguistics  
Linguistics and Computer Science  
Linguistics and East Asian Languages and Cultures

Linguistics and English  
Linguistics and French  
Linguistics and Italian  
Linguistics and Philosophy  
Linguistics and Psychology  
Linguistics and Scandinavian Languages  
Linguistics and Spanish  
Near Eastern Studies  
Philosophy  
Portuguese  
Religion, Study of  
Russian Civilization  
Russian Linguistics  
Scandinavian Languages  
Slavic Languages and Literatures  
Spanish  
Spanish and Linguistics

**(B) Physical Sciences**

Applied Mathematics  
Astronomy  
Atmospheric Sciences  
Biochemistry  
Chemistry  
Chemistry/Materials Science  
Cybernetics  
Economics/System Science  
General Chemistry  
General Physics  
Geology  
Geology — Engineering Geology  
Geology — Geochemistry  
Geology — Nonrenewable Natural Resources  
Geology — Paleobiology  
Geophysics — Applied Geophysics  
Geophysics and Space Physics  
Mathematics  
Mathematics/Applied Science  
Mathematics/Computer Science  
Mathematics/System Science  
Physics

**(C) Social Sciences**

Afro-American Studies  
Anthropology  
Chicano Studies  
Communication Studies  
East Asian Studies  
Economics  
Economics/Business  
Economics/International Area Studies  
Geography  
Geography/Ecosystems  
History  
Latin American Studies  
Political Science  
Sociology

**(D) Life Sciences**

Biology  
Kinesiology  
Microbiology  
Psychobiology  
Psychology  
Quantitative Psychology

## Courses to Fulfill Breadth Requirements

### (A) Humanities

Any of the following courses for which you are eligible:

Classics  
 Communication Studies 142, 175  
 East Asian Languages and Cultures  
 English (except 136A, 136B, 136C)  
 English as a Second Language (except 33A, 33B, 33C, 34, 103J, 103K, 106K, 107K, 109K, 111K, 122K)  
 Folklore and Mythology  
 French  
 Germanic Languages  
 Humanities  
 Indo-European Studies M150  
 Italian  
 Linguistics (except 100, 103, 170)  
 Near Eastern Languages and Cultures  
 Philosophy (except 128A, 128B, 134, 135)  
 Slavic Languages and Literatures  
 Spanish and Portuguese  
 Speech  
 Women's Studies M158

(Note: Foreign language conversation courses may be applied under the old requirements to Plan A breadth only.)

The following courses in the College of Fine Arts are also applicable:

Art 50, 51, 54, 55, 56, 57, 101A, 101B, 101C, 102, 103A through 103E, 104A, 104B, C104C, 105A through 105E, 106A, 106B, 106C, 108A, 108B, 109A through 109D, 110A through 110E, 112A, 112B, 112C, 114A through 114D, C115A, C115B, C115C, 118A through 118D, C119A, C119B, 120A, 120B, 120C, 121A, 121B, 122  
 Dance 134A, 134B, 181A, 182A, 187A  
 Music 2A, 2B, 130, 131A, 131B, 132A, 132B, 133, 134, 135A, 135B, 135C, 137A, 137B, 138, 139, 140A, 140B, 140C, 141, 142A, 142B, 143A, 143B, 144, 145, 147A, 147B, 152, M154A, M154B, 157, 159, M180, M181, 188A through 188F, 189  
 Theatre Arts 5A, 5B, 5C, 102A, 102B, 102D, 102E, 103A, 103B, 104D, 104E, 104F, 105, 106A through 106E, 108, 110A, 113, 114, 130A, 130B

### (B) Physical Sciences

Any of the following courses for which you are eligible:

Astronomy  
 Atmospheric Sciences  
 Computer Science 20  
 Chemistry and Biochemistry  
 Earth and Space Sciences (except 20 if used on life science, 115, M117, M118)  
 Economics 141, 144, 145, 146, 147A, 147B  
 Engineering 11  
 Geography 1, 100, 104, 105, 106  
 History: either 3A or 3B if not applied on the social science breadth requirement (no more than one of History 3A, 3B, or Physics 10 may be applied toward the breadth requirement in the physical sciences)  
 Mathematics (except 1A, 38A, 38B, 104)  
 Philosophy 128A, 128B, 134, 135  
 Physics

### (C) Social Sciences

Any of the following courses for which you are eligible:

Afro-American Studies 100B, 145, 197B  
 Anthropology (except 1, 2, 11, 125A, 125B, 186A, 186B)  
 Asian American Studies  
 Communication Studies (except 142, 175)  
 Economics (except 40, 141, 144, 145, 146, 147A, 147B)  
 Geography (except 1, 2, 5, 6, 100, 104, 105, 106, 108, 109, 110, 112, 171)  
 History (3A or 3B may be applied toward the social science or physical science breadth requirement, but not toward both; History 3C may be applied toward the social science or life science breadth requirement, but not toward both)  
 Indo-European Studies 131, 132  
 Journalism (except 101A, 101B, 182A)  
 Kinesiology 106  
 Linguistics 100, 103, 170  
 Music 149  
 Political Science  
 Psychology (except 15, 41, 110, 111, 115, 116, 117, 118A through M118F, M119, 120, 121, 142)  
 Sociology (except 18)  
 Women's Studies 100, M148

### (D) Life Sciences

Any of the following courses for which you are eligible:

Anthropology 1, 2, 11, 125A, 125B  
 Biology (except 30)  
 Earth and Space Sciences 15 and 20 (if not applied as physical science), 115, M117, M118  
 Geography 2, 5, 108, 109, 110, 112  
 History 3C (may be applied toward the social science or life science breadth requirement, but not toward both)  
 Kinesiology (except 106 and physical education activities courses)  
 Microbiology  
 Psychology 15, 110, 111, 115, 116, 117, 118A through M118F, M119, 120, 121

## Advanced Placement

You may fulfill a part of the college breadth requirements with credit allowed at the time of admission for College Entrance Examination Board (CEEB) Advanced Placement Tests with scores of 5, 4, or 3. You will receive Advanced Placement Test credit only if you have completed fewer than 36 quarter units at the time of the examination. See the chart below for AP credit allowed.

## 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 the Division of Honors.

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 (\$5 each) are available only through an appointment with a college counselor. Approval is given or withheld by the Dean, Division of Honors, who may limit the number of such petitions you present.

## Honors

### College Honors

The Certificate of College Honors is the highest academic recognition the College of Letters and Science confers on its undergraduates. The College Honors program under the

direction of the Dean, Division of Honors, provides the exceptional UCLA undergraduate the organization and environment within which to pursue individual excellence.

College Honors will be awarded by the Provost of the College of Letters and Science to graduating seniors who have completed 44 units of honors-designated courses as approved by the Dean, Division of Honors. Such courses will include, among others, courses in the Honors Collegium, honors sections of regular courses, honors-contract courses, Freshman/Sophomore Seminars, Senior Seminars, Graduate Colloquia and Seminars, and research and thesis preparation courses.

Students in the College Honors program enjoy graduate library privileges at the University Research Library, preferential pre-enrollment in classes, eligibility for honors research awards, and special counseling within the Division of Honors. College Honors will be recorded on the transcript and a Certificate of College Honors awarded on graduation.

Entering freshmen with both an exceptional grade-point average (3.5 or above) and SAT scores (a combined 1270 score) are invited by the Dean, Division of Honors, to participate in the College Honors program. Those entering freshmen who have graduated in the top three percent of their class may apply for admission to College Honors. Other students with at least 12 or more graded units at UCLA and a cumulative grade-point average of 3.5 or above are encouraged to apply.

You may apply for admission at A311 Murphy Hall. For further information, attend one of the group meetings offered regularly by the Division of Honors.

## Honors Status

A student in the College of Letters and Science who has demonstrated superior academic achievement is eligible to apply for admission to Honors Status, which is recorded on the transcript. Admission may be granted by the Dean, Division of Honors, after completion of 12 or more graded units at UCLA with a cumulative grade-point average of no less than 3.5. Continued superior academic achievement is requisite for remaining in Honors Status. Apply at A311 Murphy Hall.

Students with Honors Status are usually eligible for admission to the honors programs offered by a number of the departments in the college, including honors sections of regular courses, honors courses of a seminar type, honors thesis programs, and supplementary and advanced directed study. Honors Status students are also eligible for research funding through the Division of Honors. For details on these programs, consult the Division of Honors or your major department.

## Honors with the Bachelor's Degree

Honors with the Bachelor's Degree will be awarded according to your overall grade-point average at the beginning of the last quarter of

(continued on page 80)

## Credit for Advanced Placement Tests

| Test  | UCLA Course Equivalents**                        | Credit Allowed on GE Requirements                            | Credit Allowed on Breadth Requirements   |
|---|--|--|--|
| Art   |  | No application for art                                       |  |
| Art History   | 10 units   |  | 10 units toward humanities   |
| Art Studio: General Portfolio or Drawing Portfolio              | 10 units for either general or drawing portfolio |  | No application for art studio  |
| Biology   | Biology 2 (4 units) plus 6 unassigned units      | Credit for Biology 2 (4 units)                               | Credit for Biology 2 (4 units) plus 6 units toward life science                        |
| Chemistry   | 10 units   | No application for chemistry                                 | 10 units toward physical science   |
| Computer Science  | Score 3, 4, or 5 — 5 units                       | Satisfies quantitative reasoning requirement                 | No application for computer science  |
| English Language and Composition or Composition and Literature* | Score 3 — Subject A, 10 unassigned units         | Score 3 — Satisfies Subject A requirement                    | Score 3 — Satisfies Subject A requirement and 10 units toward humanities               |
|   | Score 4 — Subject A, English 3 (10 units)        | Score 4 or 5 — Satisfies Subject A requirement and English 3 | Score 4 — Satisfies Subject A requirement and English 3 plus 6 units toward humanities |

**Note:** 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).

\* Students who take both tests will receive a maximum of ten units of credit.

\*\* All UCLA course equivalents consist of lower division advanced placement units.



## Credit for Advanced Placement Tests (continued)

| Test   | UCLA Course Equivalents**  | Credit Allowed on<br>GE Requirements   | Credit Allowed on<br>Breadth Requirements   |
|--|--|--|---|
| English<br>(continued)                       | Score 5 — Subject A, English 3<br>and 4 (10 units)   |  | Score 5 — Satisfies Subject A<br>requirement and English 3 and 4<br>(6 units total toward humanities)                                   |
| History, American                            | Score 3 — 10 units<br><br>Score 4 or 5 — History 7A-7B<br>(10 units)<br><br>Score 3, 4, or 5 — Satisfies<br>American History and Institutions<br>requirement | Score 3 — No application<br><br>Score 4 or 5 — Credit for History<br>7A-7B                           | Score 3 — 10 units toward social<br>science<br><br>Score 4 or 5 — Credit for History<br>7A-7B (10 units total toward social<br>science) |
| History, European                            | History 1C (4 units) plus 6 units  | Credit for History 1C (4 units)  | Credit for History 1C (4 units) plus<br>European history (6 units toward<br>social science)   |
| Language, French<br>French Language          | Score 3 — French 4 (10 units total)<br>Score 4 — French 5 (10 units total)<br>Score 5 — French 6 (10 units total)  | 4 units toward language and<br>linguistics requirement   | 10 units toward humanities  |
| French Literature                            | 10 units   | No application for French literature   | 10 units toward humanities  |
| Language, German                             | Score 3 — German 3 (10 units)<br>Score 4 — German 4 (10 units)<br>Score 5 — German 5 (10 units)  | Score 3 — No application<br>Score 4 or 5 — 4 units toward<br>language and linguistics<br>requirement | Score 3 — No application<br>Score 4 or 5 — 10 units toward<br>humanities  |
| Language, Latin<br>Vergil<br>Catullus/Horace | Classics — Title (5 units)   | No application for Latin   | 5 units toward humanities<br>5 units toward humanities  |
| Language, Spanish<br>Spanish Language        | Score 3 — Spanish 4 (10 units)<br>Score 4 or 5 — Spanish 5 (10<br>units total)   | 4 units toward language and<br>linguistics requirement   | 10 units toward humanities  |
| Spanish Literature                           | 10 units   | No application for Spanish<br>literature   | 10 units toward humanities  |
| Mathematics (AB test)*                       | Mathematics 31A (5 units)  | Credit for Mathematics 31A (5<br>units)  | Credit for Mathematics 31A<br>(5 units toward physical science)   |
| Mathematics (BC test)*                       | Mathematics 31A, 31B (10 units)  | Credit for Mathematics 31A, 31B<br>(10 units total)  | Credit for Mathematics 31A, 31B<br>(10 units total toward physical<br>science)  |
| Music  |  | No application for music   |   |
| Music Literature*                            | 10 units   |  | 10 units toward humanities  |
| Music Theory*                                | 10 units   |  | No application for music theory   |
| Physics                                      |  | No application for physics   |   |
| B Test *                                     | 10 units   |  | 10 units toward physical science  |
| C Test*                                      | 5 or 10 units  |  | 5 units for C1 and 5 units for C2<br>toward physical science  |

**Note: 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).**

\* Students who take both tests will receive a maximum of ten units of credit.

\*\* All UCLA course equivalents consist of lower division advanced placement units.

academic work or, if not then eligible, at graduation. To be eligible, you must have completed 90 or more units for a letter grade at the University of California. Coursework taken on the Education Abroad Program may not be applied toward Honors with the Bachelor's Degree. The levels of honors and the requirements for each level are: *Cum laude*, an overall average of 3.5; *Magna cum laude*, 3.65; *Summa cum laude*, 3.85. Marginal cases will be decided by the Committee on Honors, which grants petitions for waiver of these requirements only in extraordinary cases.

### Dean's Honor List

The Dean's Honor List recognizes high scholastic achievement in any one quarter. The following criteria are used to note Dean's Honor List on the student records: (1) a 3.75 GPA in any one quarter 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 quarter, with no grade of NP or I. Dean's Honor List is automatically recorded on your transcript.

### Departmental Scholar Program

Departments may nominate exceptionally promising undergraduate students (juniors and seniors) as 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 for the honors program in the college. You must also have at least one quarter'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).

### The Honors Collegium

The Honors Collegium is an unusual educational program designed primarily for students in their freshman and sophomore years. Those who have performed well on their SAT examinations or who already have a high college GPA may enroll in specially devised Honors Collegium courses with an interdisciplinary emphasis. The Collegium guarantees small classes and individual attention. It encourages animated discussion among students, as well as between students and professors. And it seeks to provoke scholarly exchange across the major disciplines in the University. Core

courses are offered regularly to provide a foundation in the physical sciences, humanities, and social sciences. A wide selection of special courses, varied each year, completes the curriculum.

Each Collegium course is staffed by a director who is distinguished in teaching and scholarship, by a variable number of visiting lecturers, and by additional specialists in their fields. Collegium courses satisfy many general breadth requirements and serve as preparation for numerous majors in the College of Letters and Science. Counselors are available in the Division of Honors, A311 Murphy Hall, to advise and help you plan an integrated academic program.

In 1984-85 the Honors Collegium will offer the following one-quarter courses carrying from four to eight units of credit each. Those courses marked "CORE" are part of the core curriculum; students are encouraged to take core courses in sequence.

#### Fall Quarter

HC 40 — "Origin and Evolution of the Solar System and the Earth" (4 units), CORE, Mr. Ernst and Mr. Kaula, Earth and Space Sciences

HC 43 — "Mind, Brain, Humans, and Computers" (4 units), Mr. Taylor, Biology

HC 50 — "The Greek Views of Humanity" (4 units), CORE, Ms. Bergren, Classics

HC 60\* — "Freedom and Control: An Introduction to Social Science" (8 units), CORE, Mr. Parducci, Psychology

HC 190 — "Interdisciplinary Colloquium on Mathematics in the Behavioral Sciences" (4 units), Mr. Intriligator, Economics

#### Winter Quarter

HC 41 — "Origin and Evolution of Life and Humans" (4 units), CORE, Mr. Sackett, Anthropology, and Mr. Schopf, Earth and Space Sciences

HC 44 — "Genetic Engineering and the Evolution of Biological Molecules" (4 units), Mr. Dickerson, Chemistry and Biochemistry

HC 51 — "The Renaissance View of Humanity" (4 units), CORE, Ms. Packer, English

HC 54 — "Literature and Performance" (4 units), Mr. Hutter, English

HC 55 — "Privacy in Classical Greece and Rome" (4 units), Mr. Habinek, Classics

HC 61\* — "Social Theory in the Twentieth Century" (6 units), CORE, Mr. Alexander, Sociology

HC 63 — "Evolution of Modern Urban Society" (4 units), Mr. Monkkonen, History

HC 64 — "Introduction to Mathematical Economics" (4 units), Mr. Ellickson, Economics

### Spring Quarter

HC 42\* — "Making of a Scientific Culture" (6 units), CORE, Mr. Frank, Anatomy/Medical History, and Mr. Wise, History

HC 45 — "Demise of the Dinosaurs: Mass Extinctions and the History of Life" (4 units), Mr. Olson, Biology

HC 52 — "Realism and the Novel" (4 units), CORE, Mr. Novak, English

HC 56 — "Structure and Development of Language" (4 units), Ms. Curtiss, Linguistics

HC 57 — "Religion and Society" (4 units), Ms. Adams, Philosophy

HC 65 — "Introduction to Psychocultural Studies" (4 units), Mr. Kilborne, Anthropology

\*Courses include an English seminar and carry one-half credit toward satisfaction of the English Composition requirement.

### Honors Scholarships

A variety of scholarships and awards for qualified incoming freshmen, continuing students, and graduating seniors are available through the Division of Honors. Many scholarships have been made possible by the generosity of individual donors, such as the Ira J. and Shirley Spoon Honors Collegium Scholarship Fund which provides annual support in the pursuit of academic excellence. This scholarship will be awarded to the student who has achieved scholastic recognition in College Honors as determined by the Dean, Division of Honors.

For information on this and other scholarships of its kind, contact the Division of Honors.

### Division of Honors Office

The Division of Honors, located in A311 Murphy Hall (825-1553, 825-3786), provides academic counseling and services for College Honors and Honors Status students, Departmental Scholars, students pursuing individual majors, and students participating in the High School Scholars program. 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 of recommendation to graduate and professional schools.

In addition, the Division of Honors administers the UCLA Debate Union, the Student Volunteer Research Stipend Program, and the Division of Honors Undergraduate Mini-Grant Program.

## 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, you must declare a major in the College of Letters and Science and complete the requirements for a degree without exceeding 208 units.

New students entering in these curricula will be listed as "undeclared majors" and will be advised in the college unless an adviser is named below in the presentation of the curriculum.

### Prehealth Care Advising Office

Information and counseling on preparing for health care professional schools and assistance in filing an application are available through the Prehealth Care Advising Office, College of Letters and Science. **Open counseling sessions are held weekly** for pre-meds, pre-dents, pre-nurses, and other pre-health students (time and place are announced in the "What's Bruin" section of the *Daily Bruin* and are posted outside A328 Murphy Hall, 825-1817). Application blanks for AMCAS, MCAT, DAT, etc., may also be obtained from this office. Students in the Division of Honors can make counseling appointments in A311 Murphy Hall.

### 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) English 3 and 4; (2) Chemistry 11A, 11B/11BL, 11C/11CL, 21, 23, 25, Physics 3A, 3B, and 3C, or 6A, 6B, and 6C, or 8A, 8B, and 8C, Biology 5, 7, 8, 8L, 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, Washington, DC 20036. Sample copies of the Dental Admission Test (DAT) are available in the Prehealth Care Advising Office; **open counseling sessions are held weekly** (call 825-1817 for details).

### 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 UC School of Dentistry in San Francisco. Admission to UCSF is by competitive application.

The 90 quarter units of work required for admission to the School of Dentistry in San Francisco 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 UC School of Dentistry, but it is preferable to satisfy the requirements in the predental program); (3) one year of English which includes English 3; (4) Chemistry 11A, 11B/11BL, 11C/11CL, 21, 23, 25; (5) Biology 5, 7, 8, 8L; (6) Physics 3A, 3B, and 3C, or 6A, 6B, and 6C, or 8A, 8B, and 8C; (7) Psychology 10 and one additional psychology course; (8) 16 units in social sciences and humanities (including foreign language).

**Open counseling sessions are held weekly;** call 825-1817 for details.

\*The UC 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*.

### 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. *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 chosen 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; United States history, one unit; math-

ematics, three and one-half units; chemistry, one unit; physics, one unit; biology, one unit; foreign language (preferably French or German), 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 Medical School: (1) 12 quarter units of English, including at least one course in English composition; (2) Chemistry 11A, 11B/11BL, 11C/11CL, 21, 23, 25; (3) Physics 3A, 3B, and 3C, or 6A, 6B, and 6C, or 8A, 8B, and 8C; (4) two years of college biology to include the study of cellular, molecular, developmental, and genetic biology, including at least one year of upper division courses. Required lower division courses are Biology 5, 7, 8, 8L; suggested upper division courses are selected from Biology 110, 138, 144, CM156, 166. 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, USA and Canada*, Association of American Medical Colleges, 1 Dupont Circle NW, Washington, DC 20036; *The Education of Osteopathic Physicians*, AACOM, 4720 Montgomery Lane, Suite 609, Washington, DC 20014; and *The New MCAT Student Manual* (also an AAMC publication available at the above AAMC address). **Open counseling sessions are held weekly;** call 825-1817 for details.

### Prenursing Curriculum: Two Years

The University offers a four-year course 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 School of Nursing. You should apply to the School of Nursing when you have completed or have in progress 84 quarter credits of liberal arts courses with a 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 quarters.

Because enrollment in the UCLA School of Nursing is limited, you should become familiar with the admission requirements of other nursing programs as early as possible. Contact schools of nursing directly and attend **open counseling sessions** in UCLA's School of Nursing (times are posted in the Office of Student Affairs, 2-200 Factor Building) and those given by the Prehealth Care Advising Office (posted outside A328 Murphy Hall, 825-1817).

New students admitted to the college in this curriculum will be counseled in the college as undeclared majors, but may seek additional

advisement during posted weekly open counseling sessions. Students in the college who do not transfer to the School of Nursing must declare a major and be able to complete all degree requirements within 208 units.

**Prenursing Requirements for the UCLA School of Nursing:** (1) Anthropology 5; (2) Biology 5, 7; (3) Chemistry 11A, 15, 15L; (4) English 3; (5) Kinesiology 13; (6) Microbiology 10; (7) Physics 10 or one year of high school physics; (8) Psychology 10, 15; (9) Public Health 161; (10) Sociology 1 or 101; (11) recommended electives in the social and biological sciences. All required prenursing 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 the Dean of the School of Optometry, University of California, Berkeley, CA 94720, 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, Berkeley, include the following: (1) Subject A; (2) American History and Institutions.

**Specific UCB School of Optometry Requirements:** (1) English 3, 4; (2) Chemistry 11A, 11B/11BL, 11C/11CL, 21; (3) Physics 6A, 6B, and 6C, or 8A, 8B, and 8C; (4) Biology 5, 5L, 6, 8, 8L; (5) Psychology 10; (6) Mathematics 3A, 3B, and 3C, or 31A, 31B, and 50 or Psychology 41; (7) Microbiology 10; (8) Kinesiology 12, 13. Recommended: two upper division courses in the biological sciences.

The balance of the 135 quarter units required for admission may be selected from the social sciences, foreign languages, and the 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. **Open counseling sessions are held weekly;** call 825-1817 for details.

### 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.\*

**Curriculum Requirements (First Year):** (1) Subject A; (2) English 3, 4; (3) Chemistry 11A, 11B/11BL, 11C/11CL; (4) trigonometry and intermediate algebra (if not completed in high school); (5) 28 quarter units of electives selected from courses in foreign language, social sciences, and humanities (within the two-year preparation).

**Curriculum Requirements (Second Year):** (1) Biology 5, 7, 8, 8L; (2) Physics 3A, 3B, and 3C, or 6A, 6B, and 6C, or 8A, 8B, and 8C; (3) Mathematics 3A and 3B, or 31A and 31B; (4) Chemistry 21, 23; (5) American History and Institutions.

For further information, contact Robert LeWinter, Director of Pharmaceutical Services, A7-222 Center for Health Sciences (206-6555). **Open counseling sessions are held weekly;** call 825-1817 for details.

\*Students who have completed the two-year 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 94122, (415) 666-2732. For further information, see the *Announcement of the School of Pharmacy, San Francisco*, which may be obtained from the Dean, School of Pharmacy, University of California Medical Center, San Francisco, CA 94122.

### Prephysical Therapy Curriculum: Three or Four Years

Students who intend to apply for admission to a physical therapy school should select a major (kinesiology and psychology are commonly selected) and complete the following prerequisite courses: Kinesiology 12, and 13 or 14; Biology 5, 7; Chemistry 11A, 11B/11BL, 15, 15L; Physics 3A, 3B, 3C; Psychology 10, 115, 127, 130. Recommended: one course in statistics. 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.

Information on physical therapy programs in California may be obtained from the Student Affairs Office in the Department of Kinesiology, 2834 Slichter Hall (825-3891). You should write each school early in your sophomore

year for specific admission requirements and application deadlines. Information concerning out-of-state programs may be obtained from the American Physical Therapy Association, 1156 15th St. NW, Washington, DC 20005.

### Prepublic Health Studies

The professional and academic fields of public health need individuals from many disciplines. Candidates for graduate study may come from a wide variety of academic backgrounds and training, including mathematics and the physical, biological, and social sciences. Preparation typically includes a minimum of two courses each in mathematics, biological sciences, and social sciences, and one course in physical sciences.

Interested students and those who wish to apply to the UCLA School of Public Health should review the school's announcement booklet for additional requirements or recommendations for entry into the various programs of study.

### Prelaw Studies

Law schools have no preference with regard to specific majors or particular courses. Admission to law school is based on the quality of your academic work, LSAT scores, and other qualities as reflected in letters of recommendation, in the written application, and in interviews. The College of Letters and Science offers advising on preparing for and applying to law schools through **weekly drop-in counseling sessions**. For the time and place of the drop-in sessions, see the "What's Bruin" section of the *Daily Bruin* or call 825-1965. Students in the Division of Honors can make counseling appointments in A311 Murphy Hall.

For additional information, see the *Law School Admission Bulletin* within the "Law School Admission Service Packet" (available at the Admissions Office, UCLA Law School) and *The Prelaw Handbook* (available at local bookstores).

## 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 departmental listings which follow for specific requirements and procedures.

# African Area Studies

## (Interdepartmental)

10244 Bunche Hall, 825-3686

### Professors

Richard L. Abel, LL.B., Ph.D. (*Law*)  
 Edward A. Alpers, Ph.D. (*History*)  
 James S. Coleman, Ph.D. (*Political Science*)  
 Christopher Ehret, Ph.D. (*History*)  
 John Friedmann, Ph.D. (*Architecture and Urban Planning*)  
 Victoria A. Fromkin, Ph.D. (*Linguistics*)  
 John S. Galbraith, Ph.D. (*History*)  
 Edward Gonzalez, Ph.D. (*Political Science*)  
 Peter B. Hammond, Ph.D. (*Anthropology*)  
 Hassan el Nouty, Docteur ès Lettres (*French*)  
 Richard C. Hawkins, M.A. (*Theater Arts*)  
 Derrick B. Jelliffe, M.D. (*Public Health*)  
 Frederick C. Kintzer, Ed.D. (*Education*)  
 Mazisi R. Kunene, M.A. (*Linguistics*)  
 Peter Ladefoged, Ph.D. (*Linguistics*)  
 Michael F. Lofchie, Ph.D. (*Political Science*)  
 Jacques Maquet, Ph.D. (*Anthropology*)  
 Peter Marris, B.A. (*Architecture and Urban Planning*)  
 Henry W. McGee, Jr., J.D., LL.M. (*Law*)  
 Alfred K. Neumann, M.D. (*Public Health*)  
 Charlotte G. Neumann, M.D. (*Public Health*)  
 Boniface I. Obichere, D.Phil. (*History*)  
 Antony R. Orme, Ph.D. (*Geography*)  
 Merrick Posnansky, Ph.D. (*History and Anthropology*)  
 John F. Povey, Ph.D. (*English*)  
 Georges Sabagh, Ph.D. (*Sociology*)  
 Richard L. Sklar, Ph.D. (*Political Science*)  
 Allegra Snyder, M.A. (*Dance*)  
 Edward W. Soja, Ph.D. (*Architecture and Urban Planning*)  
 Hartmut Walter, Ph.D. (*Geography*)  
 Walter R. Goldschmidt, Ph.D., Emeritus (*Anthropology*)  
 Hilda Kuper, Ph.D., Emeritus (*Anthropology*)  
 Leo J. Kuper, Ph.D., Emeritus (*Sociology*)  
 Wolf Leslau, Docteur ès Lettres, Emeritus (*Hebrew and Semitic Languages*)  
 Benjamin E. Thomas, Ph.D., Emeritus (*Geography*)

### Associate Professors

Pamela J. Brink, Ph.D. (*Nursing*)  
 Pierre-Michel Fontaine, Ph.D., Acting (*Political Science*)  
 Teshome H. Gabriel, Ph.D. (*Theater Arts*), Chair  
 Gerry A. Hale, Ph.D. (*Geography*)  
 John N. Hawkins, Ph.D. (*Education*)  
 Thomas J. Hinnebusch, Ph.D. (*Linguistics and African Languages*)  
 Robert S. Kirsner, Ph.D. (*Germanic Languages*)  
 Dwight Read, Ph.D. (*Anthropology*)  
 Arnold Rubin, Ph.D. (*Art History*)  
 Hans Schöhlhammer, D.B.A. (*Management*)  
 Russell G. Schuh, Ph.D. (*Linguistics and African Languages*)  
 Nathan Shapira, Dottore in Architettura (*Design*)

### Assistant Professors

Jacqueline C. Djedje, Ph.D. (*Music*)  
 Sebastian Edwards, Ph.D. (*Economics*)  
 Margaret FitzSimmons, Ph.D. (*Architecture and Urban Planning*)  
 Robert A. Hill, M.Sc. (*History*)  
 Gail E. Kennedy, Ph.D. (*Anthropology*)  
 Beverly J. Robinson, Ph.D. (*Theater Arts*)  
 Robert J. Russell, Ph.D. (*Anthropology*)

### Adjunct Assistant Professor

Joseph J. Lauer, Ph.D. (*Library Science*)

### Adjunct and Visiting Lecturers

J. Alfred Cannon, M.D., Visiting (*Psychiatry*)  
 Patrice Jelliffe, R.N., M.P.H., Adjunct (*Public Health*)  
 Kobra Ladzekpo, B.F.A., Visiting (*Music*)

## 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 not only the social sciences and humanities, but increasingly in the professional fields as well. The Master of Arts is not a professional degree, but students are encouraged to enroll in courses in the several professional schools on campus.

Academic flexibility draws many students to the program. Because there are more than 65 faculty members on campus with African interest and experience in approximately 20 different disciplines, students have multiple options to design individual programs.

According to a recent survey, 37 percent of the program's graduates are continuing study at the postgraduate level, 25 percent are employed in higher education, and 24 percent work with international or foreign organizations in 20 countries.

## Master of Arts Degree

### Admission

In addition to the University minimum requirements, applicants are required to (1) take the Graduate Record Examination, (2) submit three letters of recommendation from academic referees, one of which may be from an employer if the applicant has been away from school for some time, (3) submit a sample research project as evidence of serious scholarly potential, and (4) present a resume describing both academic and professional experience.

In addition to meeting the requirements of the Graduate Division, you must have adequate preparation in undergraduate fields related to the program. Required preparation for the M.A. degree in African Area Studies is a Bachelor of Arts in the social sciences or arts and humanities.

### Major Fields or Subdisciplines

Studies are concentrated in a major and minor discipline in the social sciences, arts and humanities, or professional schools. For more information and a brochure describing the program, contact the Assistant Graduate Adviser, African Studies Center, 10244 Bunche Hall, UCLA, Los Angeles, CA 90024.

### Foreign Language Requirement

You are required to satisfy the language requirement in one of the following ways: (1) take three courses (12 units) in an African

language with an average grade of B or better (these courses may not be applied toward the nine courses required for the degree); (2) pass a Linguistics Department examination in an African language not regularly offered; (3) prove that you are a native speaker of an African language; (4) prove that you have a Foreign Service Institute rating of 3 or above in an African language.

## Course Requirements

A minimum of nine courses are 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 four courses, of which two 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) minor discipline — a minimum of two courses, of which one must be at the graduate level; (3) third discipline — a course on Africa, preferably of the survey type, or the yearly colloquium sponsored by the African Studies Center. In addition, African Area Studies M229B is strongly recommended for all students in the program.

No more than one course graded on an S/U basis may be applied toward the minimum of nine courses required for the degree, except by consent of the graduate adviser. One course in the 500 series may be applied toward the total course requirement and toward the minimum graduate course requirement. By consent of the graduate adviser, another 500-level course may be allowed but may not be applied toward the minimum graduate course requirement.

## Thesis Plan

The program normally requires written comprehensive examinations for the M.A. degree. In exceptional cases, and with the consent of the graduate adviser, a thesis may be substituted for the comprehensive examinations. If you wish to follow the thesis plan, you should select, in consultation with the graduate adviser, a faculty committee to supervise your thesis. The thesis must reflect both the major and minor areas of emphasis. Normally the thesis should be submitted to the committee at the beginning of your fourth quarter in residence and should be approved before the end of that quarter. If the committee does not approve the thesis, you will have failed the requirement and will not be allowed to resubmit the thesis.

## Comprehensive Examination Plan

If you choose the comprehensive examination plan, you will be required to take a written examination administered by a three-person committee. It is your responsibility to make arrangements for this examination with faculty members in appropriate departments. Exceptions will be granted only by consent of the

graduate adviser. The examination will normally be four hours in length with major and minor fields given equal time. For grading purposes the major field will count 60 percent; the minor field, 40 percent. An oral examination may be held at the discretion of the examining committee after it has read the written examination. If you fail the comprehensive examination, you may retake it only once with the consent of the graduate adviser.

### African Development Studies within the M.A. in African Area Studies

Students interested in an interdisciplinary program in African development studies within the existing master's program should consult the graduate adviser. Coursework focuses on planning and development.

### Cooperative Degree Programs

No course may be used for credit toward more than one degree. Thus, courses that have been applied toward the completion of the M.A. degree in African Area Studies may not also be applied toward any other degree.

For more information on any of the cooperative degree programs, contact the Assistant Graduate Adviser, M.A. Program in African Area Studies.

### M.P.H./M.A.-African Area Studies

The School of Public Health and the African Area Studies Program have an articulated degree program whereby you can work sequentially for the master's degree in African area studies and a master's degree in 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.

### English Language Teaching and Research

If you wish to prepare for English language teaching and research, you have two options: (1) selected Africa-related courses in English as a Second Language can be selected as a major or minor field for the M.A. degree or (2) for more extensive study, the M.A. degree can be combined with the postgraduate certificate in TESL by taking additional specified courses.

### Graduate Courses

**M229B. Africana Bibliography and Research Methods.** (Same as Library and Information Science M229B.) The course explores the problems and techniques of research methodologies related to Africana studies. Emphasis is on relevant basic and specialized reference materials, using the full range of available information resources, including library collections of books, serials, and computerized data bases.  
Mr. Lauer

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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.

**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

31A-31B-31C. Elementary Bambara

41A-41B-41C. Elementary Hausa

42A-42B-42C. Intermediate Hausa

103A-103B-103C. Advanced Swahili

143A-143B-143C. Advanced Hausa

150A-150B-150C. African Literature in English Translation

190. Survey of African Languages

199. Special Studies in African Languages

270. Seminar in African Literature

**Anthropology 112.** Old Stone Age Archaeology

M115S. Historical Archaeology

118A, 118B. Museum Studies

121A. Fossil Man and His Culture

121B. The Australopithecines

121C. Evolution of the Genus *Homo*

133P. Social and Psychological Aspects of Myth and Ritual

133R. Aesthetic Anthropology

135Q. The Individual in Culture

137. Ethnography on Film

152P. Comparative Systems of Social Inequality

155. Illness in Non-Western Societies

156. Comparative Religion

158. Hunting and Gathering Societies

160. Introduction to Social Action Anthropology

161. Development Anthropology

165. Demographic Problems in Nonindustrial Societies

M168. Health in Culture and Society

171. Civilization of Sub-Saharan Africa

212P. Selected Topics in Hunter-Gatherer Archaeology

221A-221B. The Fossil Evidence for Human Evolution

230Q. Cultural Anthropology

233P. Symbolic Anthropology

233Q. Aesthetic Anthropology

239P. Selected Topics in Field Training in Ethnography

M247A. Ethnographic Film

250. Social Anthropology

252P. Social Inequality

254. Kinship

255. Comparative Political Institutions

M262P. Culture and Human Reproduction

M263. Medical Anthropology

M266. Medical Anthropology in Public Health

M267B-M267C. Ethnographic Film Direction

271. African Cultures

280. Anthropology Theory

**Architecture and Urban Planning 210A.** A History of Planning Thought since 1800

210B. Colloquium in Planning Theory

217A-217B. Comprehensive Planning Project

232. Spatial Planning: Regional and International Development

233. The Political Economy of Urbanization

234. Seminar in Spatial Development Policy

235A-235B. Regional Approaches to National Development

236A. Urban and Regional Economic Development I

237. Introduction to Regional Planning: The Evolution of Regional Planning Doctrines

253. Social Theory for Planners

260. Advanced Seminar on Natural Environment and Resources

261A. Introduction to Environmental Analysis

266. Seminar on Land-Use Planning

269. Special Topics in Natural Environment and Resources

279A. Housing for Developing Countries

**Art 55.** Africa, Oceania, and Native America

101A, 101B, 101C. Egyptian Art and Archaeology

118C. The Arts of Sub-Saharan Africa

C119A. Advanced Studies in African Art: Western Africa

C119B. Advanced Studies in African Art: Central Africa

201. Historiography of Art History

203. Museum Studies

C216A. Advanced Studies in African Art: Western Africa

C216B. Advanced Studies in African Art: Central Africa

220. The Arts of Africa, Oceania, and Pre-Columbian America

**Berber (Near Eastern Languages) 101A-101B-101C.** Elementary Berber

102A-102B-102C. Advanced Berber

120A-120B-120C. Introduction to Berber Literature

130. The Berbers

**Dance 172B.** Dance of Ghana

182A. Dance Cultures of Africa

**Dutch-Flemish and Afrikaans (Germanic Languages) 101B.** Elementary Afrikaans

101E. Intermediate Readings in Afrikaans

112. Dutch, Flemish, Afrikaans Literature in Translation

135. Introduction to Afrikaans Literature

**Economics 110.** Economic Problems of Underdeveloped Countries

111. Theories of Economic Growth and Development

112. Policies for Economic Development

211. Economic Development

212. Applied Topics in Economic Development

213A-213B. Selected Problems of Underdeveloped Areas

**Education 204C.** Education and National Development

238. Cross-National Analysis of Higher Education

253B. Seminar: African Education

253F. Seminar: Education in Revolutionary Societies

261D. Seminar: The Community College

**English 114.** World Literatures in English

M261. Studies in African Literature in English

**English as a Second Language 109J.** Introduction to Literature for ESL Students

109K. Literature in the ESL Context

220K. Materials Development for Language Teaching  
 221K. Media for Language Teaching  
 223K. Role of English as a Second Language in Bilingual Education  
 280K. Language Policy in Developing Countries  
 M285K. Studies in African Literature in English  
**Folklore and Mythology** M154A-M154B. The Afro-American Musical Heritage  
 M155. Oral Traditions in Africa  
 M235. African Myth and Mythology  
**French** 221A. Introduction to the Study of the French-African Literatures  
 221B. French-African Literature of Madagascar and Bantu Africa  
**Geography** 101. Coastal Geomorphology  
 108. World Vegetation  
 109. Ecology of Vegetation  
 112. Animal Geography: Biophysical Aspects  
 117. Animal Geography: Cultural Aspects  
 118. Medical Geography  
 122. Man and Environment in Africa  
 128. The World's Ecosystems: Problems and Issues  
 132. Cultural Geography of the Premodern World  
 133. Cultural Geography of the Modern World  
 169. The Earth from Above  
 188. Northern Africa  
 189. Middle and Southern Africa  
 202. Fluvial Geomorphology Seminar  
 203. Glacial Geomorphology Seminar  
 212. Advanced Biogeography: Animals  
 229. Seminar: Man and Environment  
 232. Advanced Cultural Geography  
 233. Seminar: Cultural Geography  
 242. Advanced Population Geography  
 269. Remote Sensing of Environment  
 M278. Dating Techniques in Environmental Sciences and Archaeology  
 288. Northern Africa  
 289. Middle and Southern Africa  
 291. The Arid Lands  
**History** 10A-10B. Introduction to the Civilizations of Africa  
 158B-158C. Introduction to Afro-American History  
 175A. 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  
 176A-176B. History of West Africa  
 178A-178B. History of Eastern Africa  
 179A-179B. History of Southern Africa  
 197. Undergraduate Seminars  
 200N. Advanced Historiography: Africa  
 201N. Topics in History: Africa  
 275. Introduction to the Professional Study of African History  
 276. African Archaeology: Field Techniques  
 277. African Archaeology: Data Analysis  
 278A-278B. Seminar in African History  
**Music** 81E. Music and Dance of Ghana  
 91E. Music and Dance of Ghana  
 140B. Musical Cultures of the World  
 143A-143B. Music of Africa  
 M154A-M154B. The Afro-American Musical Heritage  
 157. Music of Brazil  
 280. Seminar in Ethnomusicology  
 287. Seminar in African Music  
 C290A-C290B. Proseminar in Ethnomusicology

**Political Science** 139A-139Z. Special Studies in International Relations  
 165. Government and Politics in North Africa  
 166A-166B-166C. Government and Politics in Sub-Saharan Africa  
 167. Ideology and Development in World Politics  
 C250E. Seminar in African Studies  
 C271. Seminar in Political Change  
**Public Health** 112. Principles of Epidemiology  
 114. Epidemiology  
 160. Principles of Food and Nutrition  
 161. Nutrition and Health  
 171B. Family Health and Population: Principles and Issues  
 179A. Health Problems and Programs in Africa  
 179B. African Health Sector Analysis Seminar  
 186. The World's Population and Food  
 212H. Epidemiology of Arthropod-Borne Disease  
 214. Infectious and Tropical Disease Epidemiology  
 218A, 218B. Protozoal Diseases of Man  
 220A, 220B. Helminthic Diseases of Man  
 222. Seminar in Epidemiology: Infectious and Tropical Disease  
 240. Health Care Issues in International Perspective  
 270. Maternal and Child Nutrition  
 272. Seminar on Current Issues in Maternal and Child Health  
 M274A-M274B. Population Policy and Fertility  
 M274C. Seminar in Population Policy and Fertility  
 275. Human Lactation: Biological and Public Health Significance  
 470A. International Health Agencies and Programs  
 470B. Advanced Issues in International Health  
 472A. Maternal and Child Health in Developing Areas  
 472B. Recent Developments in Maternal and Child Health in Disadvantaged Countries  
 472D. Overseas Refugee Health Programs  
 475. Planning and Development of Family Health Programs  
 477. Assessment of Family Nutrition  
 478. Anthropometric Nutritional Assessment  
 479D. Nutrition Education and Training: Third World Considerations  
**Sociology** 112. Development of Sociological Theory  
 113. Contemporary Sociological Theory  
 114. Marxist Sociology  
 120. Social Change  
 124. Ethnic and Status Groups  
 126. Social Demography  
 130. Social Processes in Africa  
 160. The Demography and Sociology of Women's Economic Roles  
 212A-212B. Marxist Methodology  
 213A-213B. Techniques of Demographic and Ecological Analysis  
 217A-217B. Ethnographic Fieldwork  
 218A-218B. Ethnomethodological Methods  
 256. Demography  
 274. Selected Problems in the Sociology of Africa  
 M287A-M287B. Population Policy and Fertility  
 M287C. Seminar in Population Policy and Fertility  
**Theater Arts** 102E. Theater of the Non-European World  
 106C. History of African, Asian, and Latin American Film  
 108. History of Documentary Film  
 112. Film and Social Change  
 202P. Seminar in Traditions of African Theater  
 M209C. Ethnographic Film  
 221. Seminar in Film Authors

M265A-M265B. Ethnographic Film Direction  
 276. Seminar in Non-Western Films

## African Studies (Interdepartmental)

10244 Bunche Hall, 825-2944

### 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 program 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 program can be taken only jointly with work toward a bachelor's degree in one of the following fields: anthropology, economics, geography, history, Near Eastern and African languages, political science, or sociology. Students completing this special program will receive a degree with a major in a chosen discipline and specialization in African studies. The chair of the committee in charge will certify completion of the Special Program in African Studies.

### Special Undergraduate Program

#### Preparation for the Program

The introductory courses listed here in three of the following departments are required: Anthropology 5 and 6; Economics 1 and 2, or 100; Geography 1 and 3; History 10A-10B; Linguistics 5; Sociology 1 or 101. Training in Arabic, French, Portuguese, or an African language is highly recommended.

#### 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, they are required to take a course related to Africa in each of four departments. One required upper division course related to Africa may, however, be replaced by a three-quarter sequence of any African language.

For more information, contact the Assistant Graduate Adviser, African Studies Center, 10244 Bunche Hall (825-2944) or Professor Christopher Ehret, History, 6265 Bunche Hall (825-4093).



## Afro-American Studies (Interdepartmental)

3111 Campbell Hall, 825-7403

### Professors

Alden Ashforth, Ph.D. (*Music*)  
Gordon L. Berry, Ed.D. (*Education*)  
Stanley Coben, Ph.D. (*History*)  
Mazisi R. Kunene, M.A. (*Linguistics*)  
Boniface I. Obichere, D.Phil. (*History*)

### Associate Professors

Pierre-Michel Fontaine, Ph.D., *Acting* (*Political Science*)  
J. Eugene Grigsby, III, Ph.D. (*Architecture and Urban Planning*)  
Claudia Mitchell-Kernan, Ph.D. (*Anthropology*)  
Hector F. Myers, Ph.D. (*Psychology*)  
Alfred E. Osborne, Jr., Ph.D. (*Management*)  
Gloria J. Powell, M.D., *in Residence* (*Psychiatry*)  
Romeria Tidwell, Ph.D. (*Education*)  
Gail E. Wyatt, Ph.D., *in Residence* (*Psychiatry*)

### Assistant Professors

Margaret W. Creel, Ph.D. (*History*)  
Jacqueline C. Djedje, Ph.D. (*Music*)  
Halford H. Fairchild, Ph.D. (*Psychology*), *Chair*  
Robert A. Hill, M.Sc. (*History*)  
James H. Johnson, Ph.D. (*Geography*)  
Vickie M. Mays, Ph.D. (*Psychology*)  
Melvin Oliver, Ph.D. (*Sociology*)  
Warren Pinckney, Ph.D. (*Music*)  
Beverly J. Robinson, Ph.D. (*Theater Arts*)  
Richard A. Yarrow, Ph.D. (*English*)

### Adjunct Associate Professor

Karen Hill Scott, Ed.D. (*Architecture and Urban Planning*)

### Adjunct and Visiting Lecturers

Barbara A. Bass, M.S.W., *Adjunct* (*Social Work*)  
Kenny Burrell, E.A., *Visiting*

## Scope and Objectives

The Afro-American studies major is a relatively new major at UCLA. Originally born during the late 1960s and early 1970s, the program was designed to fill a void that existed at UCLA in terms of social science material relevant to the Black experience. Students and faculty currently associated with the program see the Afro-American studies 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 Afro-American experience in the United States. For Afro-American students, this leads to a heightening of self-awareness and self-pride. For non-Afro-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 Afro-Americans. This goal is achieved in two primary ways. First, it provides an interdisciplinary exposure to particular features of the Afro-American experience. Majors gain an in-depth understanding of the historical, anthropological, sociological, psychological, economic, and political aspects of Afro-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 made a number of changes in the degree requirements for the 1983-84 academic year. Students declaring an Afro-American studies major after Spring Quarter 1983 must satisfy the requirements that follow. Students who declared the major prior to Spring Quarter 1983 may satisfy either the new requirements or those described in the 1982-83 *UCLA Undergraduate Catalog*. Because of the evolving nature of the program, you should periodically check with the program office for additional changes and/or updates. Majors should also closely consult the 1984-85 *Afro-American Studies Catalog and Directory*, available from the program office.

### 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 (prerequisites 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 1 (or 11), 2, 5, 6; *economics:* Economics 1, 2, 40, Mathematics 3A, 3E (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 100 or 101); *philosophy:* Philosophy 4, 21, 22, 31; *political science:* Political Science 1, 6, 20 (or 21), Sociology 1, Economics 1; *psychology:* Mathematics 2, Psychology 10, 41, 42, Biology 2, Anthropology 11, Physics 10 (or 3A or 6A or 8A), one year of high school chemistry (or Chemistry 2 or 11A); *sociology:* Mathematics 2, Sociology 1 (or 101), 18, Linguistics 1, Anthropology 22. You are strongly urged to complete the required lower division courses within the first two years of the major.

### The Major

**Required:** (1) Afro-American Studies M164, English M104, History 158B-158C; (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 following list of approved courses; (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 will best meet your current and future educational and career goals.

**Approved courses** (recommended courses are in bold):

Afro-American Studies **M100A**, **100B**, **145**, **M164**, **M172**, **M197**, **197B**

Anthropology 110, 111, 115P, 115Q, 120, 122, 123, 124, **125A**, **125B**, **130**, 131, 133P, 134, 135P, **135Q**, 135R, **136P**, **M136Q**, 137, 138, **M140**, 142A, 142B, **C145**, **150**, **151**, **152**, **153A**, **153B**, 155, 158, 161, M163, **M164**, **166**, **167**, M168, 171, 182, 186A, 186B, 187, **199**

Economics **101A**, **101B**, **102**, **103A-103Z**, 107, 110, 111, 112, **120**, **121**, 130, 133, M135A, M135B, 141, 144, 147A, 147B, 150, **151**, 160, 161, **180**, 183, 190, 191, 192, **199**

English 80, 85, 100A, 100B, 100C, 100D, **M104**, M105, 106, M107, 108A, 108B, **109**, **M111A**, 114, 115A, 118, 131, 136A, 136B, 136C, 140A, 140B, 141A, 141B, 142A, 142B, 143, 171, 172, 173, 174, **175**, 188, 189, **190**, **M197**, **199**

History 100, 101, 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, **158A**, **158B**, **158C**, **158D**, **158E**, M159A, M159B, 160, 161, 166, **175A**, **175B**, **175C**, 176A, 176B, 177, 178A, 178B, 179A, 179B, 193A, **199**

Philosophy 100A, 100B, 101A, 101B, 102, **104**, 126A, 126B, **126C**, 129, **150**, 151A, 151B, 153A, 156, 166, **172**, 178, 182, **190**, **192**, **199**

Political Science **C102**, **M103A**, **M103B**, **104A**, **104B**, 111A, 111B, 111C, 113, **114A**, **114B**, 115, **116**, 119A, 119B, 120, 124, 125, 126, 131, 137, M139, **M140**, 141, **142**, **145**, **146**, **M147**, **165**, **166A**, **166B**, **166C**, **167**, **168L**, M169B, 170, 172A, 172B, 173, 174, 175A, 175B, 180, 182A, 182B, 186, 187, 188A, **188B**, 191, **199**

Psychology **42**, 102, **110**, **111**, 112B, **115**, 116, 118B, M119, **120**, 121, 123, **125**, **127**, 129A, 129B, **130**, **132A**, **132B**, **M133B**, **135**, **136A**, C136B, 137C, 137D, M138, **139**, **142**, 143,

147, 148, 150, 151, M163, M165, 170A, 170B, M172, 175, 176, 177, 179, 192, 193, 194, 195, 199 (note: courses 110, 115, 120, 125, 127, 135, 142, and 151 should be taken by students planning to pursue graduate study in psychology)

Sociology 101, 102A-102Z, 109, 110, 112, 113, 114, 115, 118, 120, 122, 123, 124, 125, 126, 128, 129, 130, 131, 136, 138, 140, 142, M143, 145, 146, 147, 150, 151, 152, 153, 154, 155, 157, M158, 160, 161, 162, 163, 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 208/210 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.

### Master of Arts Degree

The Master of Arts program in Afro-American Studies is international in scope, focusing on Afro-American cultures in the United States, the Caribbean, and South America. The program prepares students for positions in the job market, as well as further graduate study (i.e., Ph.D. level) in their traditional disciplines.

### Admission

Applicants for admission must possess a bachelor's degree in the social sciences or humanities and demonstrate an interest in Afro-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) an official transcript; (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 the applicant's background in Afro-American studies, proposed program of study, and future career goals; (5) scores on the verbal and quantitative sections of the Graduate Record Examination; (6) an original term paper or research paper which best expresses the applicant's interests and abilities; (7) other evidence of promise deemed relevant such as work experience, accomplishments, or community and public service.

Admission to the program is limited to the Fall Quarter. The application deadline for the 1985-86 academic year is January 31, 1985 (earlier for foreign students). Prospective students may request applications from the M.A. Degree Program in Afro-American Studies, Center for Afro-American Studies, 3111 Campbell Hall, UCLA, Los Angeles, CA 90024.

### Major Fields

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 Art, Dance, Economics, Geography, Psychiatry and Biobehavioral Sciences, Theater Arts, Folklore and Mythology, Latin American Studies, African Studies, Education, Library and Information Science, Management, Public Health, and Social Welfare.

### Foreign Language Requirement

You are required to satisfy the language requirement in one of the following ways: (1) successfully completing two year's coursework in a foreign language at the college level; (2) passing a foreign language proficiency examination approved by your guidance committee and deemed appropriate by the program committee; or (3) demonstrating competence in the use of the computer as an aid in social research.

### Course Requirements

A total of 14 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 seven required courses. You are required to take Afro-American Studies M200A and three courses from the 200B through 200F series. These courses should normally be taken in the first year of study. The second year is devoted to acquiring disciplinary competence in your cognate field, and six courses must be selected from that discipline. Finally, course 270A is required, and courses 270B-270C are to be taken in conjunction with work in the discipline of your choice. These seminars are expected to facilitate completion of your thesis.

### Thesis Plan

The thesis is the final report on the results of your original investigation. Before beginning work on the thesis, you should consult closely with your academic adviser and the thesis committee. See the 1984-85 *Afro-American Studies Catalog* for details concerning thesis requirements.

### Comprehensive Examination Option

If you do not intend to continue your graduate career at the Ph.D. level, you 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 and is conducted in two phases. First, you meet with the committee members to review, revise, and approve the proposed examination. After completion of the written portion, a final oral examination is required.

### Upper Division Courses

**M100A. Special Studies in Comparative Government: Race, Class, and Politics in Latin America.** (Same as Political Science M169B.) Intensive examination of one or more special problems appropriate to comparative government. Sections are offered on a regular basis, with topics announced in the preceding quarter.  
Mr. Fontaine (F)

**100B. Psychology from an Afro-American Perspective.** A survey of psychological literature relevant to Afro-Americans. Contributions of Afro-American psychologists are emphasized. Topics include the history of psychology, testing and intelligence, the family, personality and motivation, racism and race relations, education, community psychology, and the future of Afro-American psychology.  
Mr. Fairchild (Sp)

**M104. Afro-American Literature.** (Same as English M104.) Prerequisite: satisfaction of Subject A requirement. An introductory survey of the Afro-American literary tradition from the 18th century to the present, including oral and written forms (folktales, songs, sermons; prose, poetry, drama). A study of major trends in Afro-American thought as revealed in the literature.  
Mr. Yarbrough

**145. Ellingtonia.** The course explores the music of Duke Ellington, his life, and the 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 United States. The course also 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.  
Mr. Burrell (W)

**M164. The Afro-American Experience in the United States.** (Same as Anthropology M164.) The course aims to promote understanding of contemporary sociocultural forms among Afro-Americans in the United States by presenting a comparative and diachronic perspective on the Afro-American experience in the New World. It is concerned with the utilization of anthropological concepts and methods in understanding the origins and maintenance of particular patterns of adaptation among Black Americans.  
Ms. Mitchell-Kernan (F)

**M172. The Afro-American Woman in the U.S.** (Same as Psychology M172 and Women's Studies M172.) Prerequisite: upper division standing. The course focuses on the impact of the social, psychological, political, and economic forces which impact on the interpersonal relationships of Afro-American women as members of a large society and as members of their biological and ethnic group.

Ms. Mays

**M197. Topics in Afro-American Literature.** (Formerly numbered M197A.) (Same as English M197.) A variable specialized studies course in Afro-American literature. Topics include the Harlem Renaissance; Afro-American Literature in the Nadir, 1890-1914; Contemporary Afro-American Fiction. May be repeated for credit.

Mr. Yarborough

**197B. Special Studies in Comparative Literature: Caribbean Literature.** A general introduction to the 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.

## Graduate Courses

**M200A. Advanced Historiography — Afro-American.** (Same as History M200V.) May be repeated for credit.

Ms. Creel

**200B. Seminar in the Political Economy of Race.** Prerequisite: consent of instructor. This is a seminar on political economy with special reference to black political economy. The focus is on the dynamics of allocation of wealth and power resources among social classes and racial and ethnic groups in the United States. This is done in a context that is at once comparative and international. Thus, the seminar emphasizes internationalism and transnationalism, as well as the uniqueness of the Afro-American condition. It attempts to relate the black condition in the United States to the socioeconomic system of this country and to compare it to the political, social, and economic conditions of African peoples elsewhere.

Mr. Fontaine (Sp)

**M200C. Selected Problems in Urban Sociology.** (Same as Sociology M262.) Seminar. Prerequisite: consent of instructor.

Mr. Light, Mr. Oliver

**M200D. Afro-American Sociolinguistics: Black English.** (Same as Anthropology CM243Q.) Lecture, three hours. Prerequisite: consent of instructor. The seminar aims to provide basic information on Black American English, an important minority dialect in the United States. The social implications of minority dialects are examined from the perspectives of their genesis, maintenance, and social functions. General problems and issues in the fields of sociolinguistics are examined through a case study approach. Students are required to conduct research in consultation with the instructor, as well as participate in group discussion.

Ms. Mitchell-Kernan (W)

**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 the aesthetic, cultural, and social backgrounds of Afro-American writing.

Mr. Yarborough

**200F. African-American Psychology.** (Formerly numbered 220B.) Seminar. Prerequisite: consent of instructor. Survey of the psychological literature as it pertains to persons of African-American descent. The course provides a critical review of the implications of "mainstream" research on African-Americans. This approach includes a discussion of research on the family, academic achievement, and psychological assessment (testing). A second focus is concerned with theoretical approaches advanced by African-American scholars: African philosophy, perspectives on racism in psychology, and research in the Black community.

Mr. Fairchild (Sp)

**270A. Research Methods.** (Formerly numbered 220A.) Seminar. Prerequisite: consent of instructor. An introduction to a variety of research methods, including experimental, quasi-experimental, observational, and survey research methodologies. The course covers the functions of research, research proposal writing, theory development and hypothesis testing, sampling theory, data collection, data processing and analysis, and interpretation. Also included are the ethics of research and preparing the research report.

Mr. Fairchild (F)

**270B-270C. Research Seminar.** (Formerly numbered 220B-220C.) Prerequisite: consent of instructor. Designed to provide students with an opportunity to put their research skills into practical application. During the first quarter, all students meet under the direction of a faculty member and engage in a colloquium in which they share conceptual schemata and research design. Students spend the second quarter completing their projects.

**596. Directed Readings and Tutorials.** The course seeks to provide students with an umbrella under which they can pursue specialized interests from which there is insufficient demand to warrant offering a formal course.

## American Indian Studies (Interdepartmental)

3220 Campbell Hall, 825-7315

### Professors

William Bright, Ph.D. (*Linguistics*)  
Robert A. Georges, Ph.D. (*English*)  
Carole E. Goldberg-Ambrose, J.D. (*Law*)  
Thomas J. La Belle, Ph.D. (*Education*)  
Gary B. Nash, Ph.D. (*History*), *Chair*  
Melvin Seaman, Ph.D. (*Sociology*)

### Associate Professors

Charlotte A. Heth, Ph.D. (*Music*)  
Kenneth R. Lincoln, Ph.D. (*English*)  
Pamela L. Munro, Ph.D. (*Linguistics*)  
Arnold Rubin, Ph.D. (*Art History*)

### Assistant Professors

Jennie Joe, Ph.D. (*Anthropology*)  
Paul V. Kroskity, Ph.D. (*Anthropology*)

## 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. in American Indian Studies was established here.

The M.A. 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. They will graduate with the training they need to teach Native American studies or to serve in an administrative capacity in Indian programs. The M.A. program is

coordinated by the American Indian Studies Center and ranks among the top Indian studies programs in the country.

## Master of Arts Degree

### Admission

A bachelor's degree from an accredited undergraduate institution is required for admission to the M.A. program in American Indian Studies. You must demonstrate interest in American Indian studies either by formal coursework, independent study, or practical experience. As part of the application, you must submit a detailed account of your background, potential career plan, and interest in American Indian studies. Preference will be 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 is not required, but you are encouraged to take the examination and submit test results as part of the documents supporting your enrollment application. At least three faculty letters of recommendation must be submitted. Admission to the program is limited to the Fall Quarter. You may obtain application forms and further information from the Committee to Administer the M.A. Degree in American Indian Studies, American Indian Studies Center, 3220 Campbell Hall, UCLA, Los Angeles, CA 90024.

### Major Fields or Subdisciplines

The American Indian Studies M.A. is an interdepartmental program with ten participating academic schools and departments: Anthropology, Art, Dance, English, History, Law, Library and Information Science, Linguistics, Music, and Sociology. The ten 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 schools and departments: Architecture and Urban Planning, Education, Political Science, Social Welfare, and Psychology.

### Foreign Language Requirement

Students in the M.A. program must successfully complete Linguistics 114A or 114B. Both courses, to be offered in alternate years, have been designed to show how languages are primary vehicles for understanding American Indian culture.

## Course Requirements

(1) A minimum of ten 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 Linguistics 114A or 114B, 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.

(2) All M.A. candidates will select one of the following areas of concentration: (a) history and law, (b) expressive arts, (c) social relations, (d) language, literature, and folklore. In addition to the four required courses, you 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 selected from an approved list maintained by the program.

(3) Two courses in the 500 series may be applied toward the total course requirement; however, only one 596 course may be applied toward the minimum graduate course requirement.

## Thesis or Comprehensive Examination Plan

You may choose either (1) a thesis plan or (2) a comprehensive examination plan to complete the degree program. The committee members supervising the thesis or administering the comprehensive examination will be selected by you with the consent of the program committee. Copies of the thesis must be submitted to each member of the committee by the fifth week of the quarter in which you expect to graduate. If you choose the comprehensive examination plan, you must demonstrate in written or oral examination your competency in the major and minor areas of study.

## 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 the American Indians (cultural area); Dance and Music of the American Indians (cultural area); American Indian Policy. Topics are announced in the *Schedule of Classes*. May be repeated twice for credit. (F,W,Sp)

## Graduate Courses

**M200A. Advanced Historiography—American Indian Peoples.** (Same as History M200W.)

**M200B. Cultural World Views of Native America.** (Formerly numbered 200B.) (Same as Anthropology M269P.) Seminar, three hours. The course explores written literary texts drawn from oral cultures and expressive cultural forms—dance, art, song, religious and medicinal ritual—in selected Native American societies. The instructors introduce and review methodological approaches to the study of native cultures, from structural anthropology, ethnomusicology, and folklore to modern literary analyses and direct fieldwork. Ms. Heth, Mr. Lincoln

**M200C. Contemporary Issues of the American Indian.** (Formerly numbered 200C.) (Same as Anthropology M269.) The seminar is designed to introduce students to the most important issues facing American Indians as individuals, communities, tribes, and organizations in the contemporary world. It builds on the historical background presented in course M200A and the cultural and expressive experience of American Indians presented in course M200B.

Ms. Heth, Ms. Joe

**201. Topics in American Indian Studies.** Discussion, three hours. Prerequisite: consent of instructor.

# Anthropology

341 Haines Hall, 825-2055

## Professors

C. Rainer Berger, Ph.D.  
Nicholas Blurton Jones, Ph.D.  
William O. Bright, Ph.D.  
Christopher B. Donnan, Ph.D.  
Robert B. Edgerton, Ph.D.  
Peter B. Hammond, Ph.D.  
James N. Hill, Ph.D.  
Allen W. Johnson, Ph.D.  
John G. Kennedy, Ph.D.  
Lewis L. Langness, Ph.D.  
Jacques Maquet, Ph.D.  
Clement W. Meighan, Ph.D.  
Michael Moerman, Ph.D.  
Henry B. Nicholson, Ph.D.  
Wendell H. Oswalt, Ph.D.  
Merrick Posnansky, Ph.D.  
Douglass Price-Williams, Ph.D.  
James R. Sackett, Ph.D.  
Johannes Wilbert, Ph.D.  
Bobby Joe Williams, Ph.D.  
Ralph L. Beals, Ph.D., *Emeritus*  
Joseph B. Birdsell, Ph.D., *Emeritus*  
Walter R. Goldschmidt, Ph.D., *Emeritus*  
Hilda Kuper, Ph.D., *Emeritus*  
William A. Lessa, Ph.D., *Emeritus*

## Associate Professors

Timothy Earle, Ph.D.  
Claudia Mitchell-Kernan, Ph.D.  
Philip L. Newman, Ph.D.  
Dwight Read, Ph.D.  
Susan Scrimshaw, Ph.D.  
Thomas S. Weisner, Ph.D.

## Assistant Professors

Dorothy Cheney-Seyfarth, Ph.D.  
Jennie Joe, Ph.D.  
Gail E. Kennedy, Ph.D.  
Paul V. Kroskrity, Ph.D.  
Nancy E. Levine, Ph.D.  
Sylvia Rodriguez, Ph.D.  
Robert J. Russell, Ph.D.  
Robert M. Seyfarth, Ph.D.

## Adjunct Professors

Bernard G. Campbell, Ph.D.  
Gerardo Reichel-Dolmatoff, Ph.D.  
Hiroshi Wagatsuma, Ph.D.

## Adjunct Associate Professor

Carlos Velez-I., Ph.D.

## Adjunct Assistant Professor

Larry Mai, Ph.D.

## Scope and Objectives

Anthropology is today classed as a social science, but its roots are in both the biological sciences and humanistic studies. It still constitutes a bridge linking these three areas of knowledge, and the department has strong ties with other disciplines ranging from anatomy and genetics to linguistics, classics, and fine arts.

The department recognizes the following five fields in anthropology:

**Archaeology** is the study of cultures of the past, where knowledge of their characteristics is obtained primarily from material evidence left in the ground, supplemented in some cases by historical and inscriptional records.

**Biological anthropology** studies the diversity of the human physical characteristics and the biological characteristics underlying human behavior. The faculty in this field specializes in one of four subfields: (1) primatology or the study of the characteristics of monkeys and apes; (2) paleoanthropology, the study of fossil hominids and the evolution of man; (3) human genetics; and (4) evolutionary ecology of human and nonhuman primates.

**Cultural anthropology** is the investigation of ideational systems, including religious beliefs and mythologies, philosophical and other cognitive conceptions, world views and aesthetic configurations, and technologies transmitted from generation to generation.

**Linguistic anthropology** examines the diversity of natural languages and other communicative systems, the sociocultural patterning of their use, and their relationship to the cultural knowledge of their speakers.

**Social anthropology**, closely tied to sociology, studies the structure of human communities and the institutionalized social interaction systems. It examines the diversity of family forms and kinship, governance and political systems, law and the resolution of conflict, economic collaboration, social status and role, and certain aspects of religion.

Cutting across the five fields are three other categories of course offerings: the **anthropology of social action**, **regional cultures**, and **history and theory**.

The department offers the Bachelor of Arts degree 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 medicine, public health, nursing, law, education, and social welfare. Because of its breadth of outlook, anthropology also offers an ideal basis for those seeking a general education in our increasingly interdependent world.

## Bachelor of Arts Degree

### Preparation for the Majors

**Required:** Anthropology 1, 2, 5, 6. All courses taken in preparation for the major must be taken for a letter grade.

All undergraduate anthropology majors must earn a minimum grade of C in all anthropology courses required for the major and must maintain a minimum 2.0 GPA in the major overall.

### The Majors

The Department of Anthropology offers a choice between two undergraduate majors:

- (1) General major
- (2) Preprofessional major

To provide a comprehensive understanding of the disciplines as a whole, you must take at least one course in each of the five fields (see "Scope and Objectives" above). One core course is offered in each field (archaeology offers a choice of two), but you may take any course to fulfill this requirement if the prerequisites have been met.

The **general major** is designed for students interested in an anthropological understanding of human behavior who plan to pursue personal or professional goals other than those of anthropologists. Students taking the general major must complete 14 (four-unit) upper division courses for a letter grade as follows:

- (1) One upper division course in each of the five fields: archaeology, biological anthropology, cultural anthropology, linguistic anthropology, and social anthropology.
- (2) One upper division course in the category of regional cultures.
- (3) Four additional upper division courses in anthropology.
- (4) Four upper division courses (unless otherwise designated) in related fields drawn from a list maintained in the department.

The **preprofessional major** is designed primarily for students planning to make a career in anthropology and is expected of students entering the graduate program in anthropology at UCLA. Students taking the preprofessional major must complete 16 (four-unit) upper division courses for a letter grade as follows:

- (1) One upper division course in each of the five fields: archaeology, biological anthropology, cultural anthropology, linguistic anthropology, and social anthropology.
- (2) One upper division course in the category of regional cultures.
- (3) Two upper division courses in the category of history and theory.
- (4) One course in statistics (this requirement will normally be met by taking Anthropology 186A, but may also be met by courses drawn from a list maintained in the department).

(5) Three or four additional upper division courses in anthropology.

(6) Three or four upper division courses (unless otherwise designated) in related fields drawn from a list maintained in the department.

(7) Competence in a foreign language (see below).

### Foreign Language

For the preprofessional major the department requires proficiency in one foreign language to insure that you have the communication skills and cultural insights offered by such proficiency. Any spoken language or any extinct language with a substantial body of literature is acceptable. This requirement may be met in one of two ways: (1) by completion of the fifth quarter of one foreign language or (2) by a demonstration of foreign language proficiency at level five. Courses taken to satisfy the foreign language requirements may be taken on a Passed/Not Passed basis and may be applied toward satisfaction of the Letters and Science breadth requirements in the humanities.

### Honors Program

The honors program is designed for majors who are interested in carrying out an independent research project that will culminate in an honors paper. A special honors seminar is also offered during the junior year. 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. Anthropology 198A, 199HA, 199HB, and 199HC are required. Course 199HA should be taken in the Spring Quarter of the junior year; honors students will then take courses 199HB and 199HC in the Fall and Winter Quarters of their senior year (to write the honors paper).

### Graduate Study

#### Admission

Admission to the graduate program in anthropology is ordinarily restricted to the Fall Quarter. For admission in the Winter or Spring Quarters, you must make a formal written request to the departmental admissions committee. The department does not require an undergraduate major in anthropology though this is desirable. Promising students with a B.A. or M.A. in another field may be admitted, in which case a program of background studies based on previous training and current objectives will be formulated. Knowledge of a foreign language is not required for admission, but completion of the language requirement before beginning work is highly recommended, and such students are at an advantage in the selection process.

Applications and all supporting material must be submitted by the following dates to be considered for admission for:

Winter Quarter 1985 — October 1, 1984  
Spring Quarter 1985 — December 30, 1984  
Fall Quarter 1985 — December 30, 1984

The Office of Graduate Admissions (Graduate Division, 1247 Murphy Hall, UCLA, Los Angeles, CA 90024) requires submission of an official application; official transcripts of record, in duplicate, from each college or university at which work has been completed; and a statement of purpose.

In addition, you must submit directly to the Graduate Counselor (UCLA Department of Anthropology, 341 Haines Hall, Los Angeles, CA 90024) three letters of recommendation (preferably from anthropologists), GRE scores, and a research or term paper. The department requires two faculty members to sponsor an applicant before admission is recommended.

For further information on the departmental program, a graduate syllabus may be obtained without charge by writing to the above departmental address.

## Master of Arts Degree

### Foreign Language Requirement

M.A. language requirements may be met by:

- (1) Passing the Educational Testing Service (ETS) examination in a foreign language with a score of 500 or better.
- (2) Passing a departmental examination or other demonstrations of proficiency in a foreign language by petition to the department Chair and the Dean of the Graduate Division.

Students whose native language is not English may petition to have the requirement waived. Formal written petition for such waiver should be submitted to the guidance committee, department Chair, and the Graduate Division.

### Core Course Requirements

You may demonstrate basic knowledge in the five fields by one or a combination of the following: (1) passing the core course with a grade of B or better, (2) petitioning that work taken elsewhere constitutes the equivalent of such courses, or (3) passing a special examination in each, in the Spring Quarter of your first year in residence. Courses taken while in graduate standing to meet these field requirements may also serve to meet course unit demands for the M.A. degree.

### Course Requirements

The minimum course load is three courses (12 units) per quarter, but this requirement may be waived by petition to the department Chair. An M.A. degree requires nine courses (36 units) taken for a letter grade with a minimum 3.0 grade-point average.

- (1) Four courses may be upper division (100 series).
- (2) At least five must be graduate seminars (200 series).
- (3) Three courses may be outside the major with the consent of the guidance committee.
- (4) Two courses may be anthropology independent studies (see department for course numbers) with the consent of the committee.

Eight units of course 596 taken for a letter grade may be applied toward the total M.A. course requirement, with four of these units applicable toward the minimum graduate course requirement.

### Comprehensive Examination Plan

The master's degree program is on the comprehensive examination plan. The examination consists of two parts: (1) a written examination and (2) a master's paper.

**Written Examination:** You must pass an examination in one of the five fields to demonstrate competence and intellectual promise in the field of specialization. This examination must be taken in the Spring Quarter and, in case of failure, may be taken a second time the following year. Students admitted in Winter or Spring Quarter who have the equivalent of two quarters or more of graduate work in anthropology are required to take the examination in the Spring Quarter. Students not having an adequate background must take it the following academic year.

**Master's Paper:** You submit an original paper based on field, laboratory, or library research by the end of the fifth quarter of residence. The guidance committee will assist you in formulating the research paper, monitoring its progress, and evaluating the paper when submitted. In this assignment, you are urged to work closely with your adviser.

## Ph.D. Degree

### Admission

If you are entering the department with an M.A. in Anthropology from another university or in a field other than anthropology, you will have to satisfy all master's degree requirements with the exception of the master's paper. To fulfill this requirement, you may submit your prior master's thesis or a research paper written as a graduate student (whether or not in anthropology). Only after satisfying these requirements will a student be admitted into the Ph.D. program.

### Foreign Language Requirement

You must satisfy the Ph.D. language requirement before formally nominating the five-member doctoral committee and before taking the qualifying examinations. Any language useful for field study and/or library research is

acceptable. You must submit to your departmental committee a comprehensive annotated bibliography and demonstrate familiarity with its contents by taking a written or oral examination. The format of the examination is determined by your doctoral committee. Students who speak English as a second language may waive the language requirement by petition to their committee, the department Chair, and the Graduate Division. Under unusual circumstances, the department will consider alternate means of fulfilling the requirement.

### Course Requirements

You must be in residence for one year between receipt of the M.A. degree and advancement to doctoral candidacy. During this time, coursework must be done with at least three different members of the faculty. You must be enrolled in a minimum of 12 units (this requirement may be waived by petition to the department Chair) or be on an official leave of absence.

### Qualifying Examinations

The timing of the qualifying examinations will be set in consultation with members of the doctoral committee, but they may not take place earlier than the third quarter after receiving the M.A. degree. The written qualifying examination is conducted by the departmental committee which will examine you in three subfields of your choice. Two of these three subfields will be drawn from a list available in the department; the third will be specific to your needs and interests and dissertation plans. The format of the examination is to be determined by the committee. Written examinations must be taken in one quarter and completed no later than two weeks before the end of instruction. There must be a minimum of two weeks between the written examination and the University Oral Qualifying Examination. Upon successful completion of the written examination, the doctoral committee administers the University Oral Qualifying Examination, which is expected to be completed in the same quarter as the written examination, but no later than the following quarter. The committee determines the conditions for reexamination should you fail either examination.

### Final Oral Examination

This examination, focusing on your dissertation, is required of all candidates and is administered by the doctoral committee. It may be waived by petition to the Graduate Division with the consent of the doctoral committee.

## Lower Division Courses

**1. The Principles of Human Evolution: Genetic Basis.** (Formerly numbered 1A.) Lecture, three hours; discussion, one hour. Required as preparation for the major. Students with credit for courses 1 and 2 will not receive credit for course 11. Human population biology in the conceptual framework of evolutionary processes. Emphasizes the genetic basis of evolution, population biology, and diversity among living populations.

**2. The Principles of Human Evolution: Comparative Analysis.** (Formerly numbered 1B.) Lecture, three hours; discussion, one hour. Required as preparation for the major. Students with credit for courses 1 and 2 will not receive credit for course 11. Human population biology in the conceptual framework of evolutionary processes. Emphasizes comparative primate behavior, structural anatomy, and the fossil record.

**5. Principles of Cultural Anthropology.** (Formerly numbered 5A.) Lecture, three hours; discussion, one hour. Required as preparation for the major. Students with credit for course 22 will not receive credit for this course. The character of culture and nature of social behavior as developed through anthropological study of contemporary peoples.

**6. Culture History.** (Formerly numbered 5C.) Lecture, three hours; discussion, one hour. Required as preparation for the major. The development of culture from its first beginnings to the advent of writing, as developed through archaeological investigation.

**11. The Evolution of Man.** Lecture, three hours; discussion, one hour. Does not satisfy major requirements. Students with credit for courses 1 and 2 will not receive credit for this course. Emphasis on evolutionary processes and the evolutionary past of the human species.

**22. General Cultural Anthropology.** Lecture, three hours; discussion, one hour. Students with credit for course 5 will not receive credit for this course. An introduction to the cultural understanding of human behavior designed for students who do not plan further work in anthropology. Emphasis on those concepts and theories that are applicable to everyday life and professional activities in the modern world. Examples of institutions and individual behavior of modern America are counterpointed against studies of primitive life.

**33. Culture and Communication.** Lecture, three hours. The course examines the role of culture in structuring how people communicate with one another and emphasizes the importance of language as a symbolic guide to one's culture. Topics include cultural differences in verbal and nonverbal behavior, imagined and actual differences in male and female speech, language and education, verbal style and interactional strategy, language taboos, and the sociocultural factors which promote and retard language change. The course thus emphasizes patterns of language use, rather than details of language structure.

Mr. Kroskrity, Ms. Mitchell-Kernan

**44. Culture and the Visual Arts.** Lecture, two hours; discussion, one hour. In our contemporary urban societies, looking at art objects and other aesthetic forms is a significant part of our everyday cultural experience. The anthropological approach offered in the course helps to achieve a better understanding of the formal qualities and the symbolic meanings of Western and non-Western art objects present in our visual environment.

Mr. Maquet

## Upper Division Courses

Courses 1 and 2, 5, 6, or upper division standing are prerequisite to all upper division courses, unless otherwise stated. All upper division courses with letter designations (A, B, P, Q, etc.) may be taken independently unless otherwise stated.

### Archaeology

**110. World Archaeology.** (Formerly numbered 123.) Prerequisite: upper division standing or consent of instructor. A broad survey of human culture history from its Stone Age beginnings to the establishment of the primary civilizations of the Old and New Worlds. Intended for students with a general interest in archaeology and in an anthropological approach to the study of the past. (Alternate core course for archaeology field.)

Mr. Sackett



**111. The Study of Archaeology.** A survey of contemporary prehistoric archaeology. Emphasis on what archaeologists do, and how and why they do it. Contributions of archaeology to the modern world are also examined. Intended for students with a desire to explore the nature of anthropological archaeology. (Alternate core course for archaeology field.)

Mr. Hill

**112. Old Stone Age Archaeology.** (Formerly numbered 109.) Prerequisite: course 6 or consent of instructor. The development of Paleolithic cultural traditions in Europe, Africa, Asia, and the New World. Emphasizes the ordering and interpretation of archaeological data, Pleistocene geology and chronology, and the relationship between human cultural and biological evolution.

Mr. Sackett

**113P. Archaeology of North America.** (Formerly numbered 106D.) Prerequisite: course 5, 6, or 22, or consent of instructor. Prehistory of the North American Indians; the evolution of Indian societies from earliest times to (and including) contemporary Indians; approaches and methods of American archaeology.

Mr. Meighan

**113Q. The Prehistory of California Indian Cultures.** (Formerly numbered 106B.) Examination of the California archaeological record from earliest human evidence to historic times, with emphasis on the development of cultural diversity.

Mr. Meighan

**113R. Southwestern Archaeology.** An examination of the 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. The "Great Events" (agriculture, town living, and the Great Abandonment) are given special attention. Evolutionary processes are generalized and related to contemporary world problems.

Mr. Hill

**114P. Ancient Civilizations of Western Middle America (Nahuatl Sphere).** (Formerly numbered 123C.) 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.

Mr. Nicholson

**114Q. Ancient Civilizations of Eastern Middle America (Maya Sphere).** (Formerly numbered 123D.) 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.

Mr. Nicholson

**114R. Ancient Civilizations of Andean South America.** (Formerly numbered 123E.) Prerequisite: course 5, 6, or 22. 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.

Mr. Donnan

**115P. Archaeological Field Training.** (Formerly numbered 170A.) Prerequisite: consent of instructor. Procedures of archaeological excavation, mapping, stratigraphy, collecting, and recording of archaeological data (field class conducted off campus).

**115Q. Archaeological Research Techniques.** (Formerly numbered 175B.) Prerequisite: course 6 or consent of instructor. An introduction to the techniques of discovery and analysis that archaeologists have found useful in research. Special attention to sampling, typology, and locational analysis. Techniques for the measurement of such important variables as population size, diet, seasonality, specialization, and exchange are also considered.

Mr. Hill

**115R. Strategy of Archaeology.** (Formerly numbered 175A.) Prerequisite: course 6 or consent of instructor. An introduction to problem formulation, theory, and method in archaeology, with emphasis on the development of research designs. The focus is on how archaeological research is conceived and planned, with consideration of differing viewpoints and their usefulness.

Mr. Hill

**M115S. Historical Archaeology.** (Same as History M103.) A survey of the aims and methods of historical archaeology as practiced on both sides of the Atlantic, with case studies drawn from North America, the Caribbean, Africa, and Europe.

Mr. Posnansky

**116P. Laboratory Analysis in Archaeology.** (Formerly numbered 175E.) Prerequisite: consent of instructor. Description and classification of archaeological collections: cataloging, typology, documentation. Preparation of archaeological reports for publication.

Mr. Meighan

**M116Q. Dating Techniques in Environmental Sciences and Archaeology.** (Formerly numbered M175C.) (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.

Mr. Berger

**118A. Museum Studies.** (Formerly numbered 178A.) Prerequisite: consent of instructor. Method and theory of museum operation. Acquisition accession, storage, photography, conservation, and exhibition are discussed and demonstrated. Museum research, publication, and teaching, as well as museum administration and funding, are analyzed. Lectures and demonstrations are structured to illustrate how the various aspects of museum operation are interrelated.

Mr. Donnan and the Museum Staff

**118B. Museum Studies.** (Formerly numbered 178B.) Prerequisites: course 118A and consent of instructor. Two areas of museum operation are selected by the students from those discussed and demonstrated in course 118A. The student is then required to develop expertise in these areas through a combination of library research and a series of assignments carried out in the museum.

Mr. Donnan and the Museum Staff

**119. Archaeology of Southern California: Field Studies.** Saturday field class, 8-5. The course is designed primarily for nonmajors and is a survey of Southern California archaeology from the Historical or Mission period back to the hotly disputed time of Early Man. Classroom lectures are combined with weekly field study trips to archaeological sites in the greater Los Angeles area, with the aim of exposing students to primary archaeological evidence in a variety of contexts. P/NP or letter grading.

## Biological Anthropology

**120. Survey of Biological Anthropology.** Prerequisites: courses 1 and 2, or equivalent. Limited to majors and graduate students in anthropology. A survey of biological anthropology including all major subareas. A lecture/seminar format requires attendance at a recitation section in addition to lectures. (Core course for biological field.)

Mr. Williams

**121A. Fossil Man and His Culture.** (Formerly numbered 111A.) Recommended prerequisites: courses 1, 2. Course 121A should be taken before 121B and 121C. Introduction to method and theory in paleoanthropology. Primate evolution, Cretaceous through the Miocene.

Ms. Kennedy

**121B. The Australopithecines.** (Formerly numbered 111B.) Prerequisite: consent of instructor. Recommended: courses 1, 2, 121A. The morphology, ecology, and behavior of the genus *Australopithecus*. The history of their discoveries and their place in human evolution are also discussed.

Ms. Kennedy

**121C. Evolution of the Genus *Homo*.** (Formerly numbered 111C.) Prerequisite: consent of instructor. Recommended: courses 1, 2, 121A, 121B. The origin and evolution of the genus *Homo*, including archaic sapiens and the neanderthals. The morphology, ecology, and behavior of these groups are included. The course ends with the appearance of modern man.

Ms. Kennedy

**122. Biology, Society, and Culture.** (Formerly numbered 134.) Prerequisite: course 2. An investigation of the interaction between human biology and human behavior. Particularly emphasized are the influences of human biological evolution on human cultural evolution and human cultural evolution on human biological evolution.

**123. Human Genetics.** Recommended prerequisite: course 1. The course includes discussion of the nature and causes of human biological variation. Evolutionary models of genetic and phenotypic changes are developed and compared. Geographical and cultural contributions to the development of observed patterns of human biological variation are emphasized.

**123P. Aging: An Anthropological Perspective.** Lecture, three hours. An exploration of aging from an evolutionary and cross-cultural perspective. A survey of the mechanisms of mammalian aging, population demography and life-table modification, age-group systems, and the effects of modernization on these systems in non-Western societies.

Mr. Mai

**124. Evolution and Biology of Human Behavior.** (Formerly numbered 131.) A comparative survey of the behavior patterns of prehistoric and Paleolithic peoples and those of nonhuman primates. The biological variables fundamental to human and prehuman behavior are assessed with regard to theories on the evolution of human culture.

**125A-125B. The Genetics of Human Diversity.** (Formerly numbered 130A-130B.) Course 125A or equivalent is prerequisite to 125B. A survey of human biological diversity. Emphasis is on genetics at the population level for both discrete and quantitative variation. Analytic methods and evolutionary hypotheses are considered.

**126P. Anatomy for the Humanities: Mind, Body, and Behavior.** A discussion of the structure and workings of the human machine for students with little or no knowledge of biology. Human form and function are taught from an evolutionary and developmental perspective, illustrated with relevant examples of behavior and disfunction (disease).

Mr. Russell

**127P. Primate Evolution.** (Formerly numbered 135A.) Prerequisite: upper division standing. A survey of the primate paleontological and evolutionary record, encompassing prosimians, New and Old World monkeys, and hominoids. Attendant aspects of paleoecology and behavior are discussed.

Mr. Russell

**127Q. Introduction to Primate Anatomy (6 units).** (Formerly numbered 135B.) Lecture, two hours; laboratory, four hours. Recommended prerequisite: course 127P. Laboratory includes anatomical terms and principles of dissection of a nonhuman primate cadaver, with the study of osteological material. Lectures introduce basic developmental anatomy; the evolution of gross structure; allometry, morphological and psychological scaling; and the morphological correlates of posture, locomotion, and diet.

Mr. Russell

**127R. Introduction to the Comparative Morphology and Physiology of Primates (6 units).** (Formerly numbered 135C.) Lecture, two hours; laboratory, four hours. Recommended prerequisites: courses 127P, 127Q. The series covers the functional, evolutionary, and taxonomic studies of primate anatomy and physiology. Lectures compare functional systems (e.g., locomotion) through the primate series. In laboratory students dissect regions of several unrelated specimens and perform their own comparative analysis.

Mr. Russell



**128A-128B. Primate Behavior Nonhuman to Human.** (Formerly numbered 133A-133B.) Prerequisite: upper division standing. Course 128A is prerequisite to 128B. Review of primate behavior as known from laboratory and field studies. Stresses theoretical issues and the evolution of causal processes, structure and function of animal behavior, with special reference to nonhuman primates. Human behavior is discussed as the product of such evolutionary processes. In Progress grading.

Ms. Cheney-Seyfarth, Mr. Seyfarth

**129P. Laboratory Methods in Biological Anthropology: Skeletal.** (Formerly numbered 171A.) Prerequisites: courses 1 and 2, consent of instructor. Limited to majors and graduate students. Laboratory methodology and analysis of human variation on skeletal material.

**129Q. Laboratory Methods in Biological Anthropology: Living Populations.** (Formerly numbered 171B.) Prerequisites: courses 1 and 2, consent of instructor. Limited to majors and graduate students. Laboratory methodology and analysis of human variation in living populations.

**129R. Laboratory Methods in Biological Anthropology: Biochemistry.** (Formerly numbered 171C.) Prerequisites: courses 1 and 2, consent of instructor. Limited to majors and graduate students. Laboratory methodology and analysis of human variation involving biochemical methods.

## Cultural Anthropology

**130. The Study of Culture.** The course focuses on the 20th-century elaboration and development of the concept of culture from the Boasian period to the present, thereby surveying the major schools of anthropological thought, such as historical particularism, psychological anthropology, functionalism, cultural materialism, structuralism, and symbolic anthropology. It also examines the utility of the culture concept in more applied areas of anthropology. (Core course for cultural field.)

**131. American Culture.** Prerequisite: upper division standing. An examination of American life in historical and contemporary terms, with special reference to the individual life cycle. The goal is to offer a systematic analysis of American culture and society in a cross-cultural perspective.

Mr. Oswalt

**132. Technology and Environment.** (Formerly numbered 122C.) Significance of material culture in archaeology and ethnology; problems of invention and the acceptance of innovations; the ecological and sociological concomitants of technological systems; selected problems in material culture.

**133P. Social and Psychological Aspects of Myth and Ritual.** (Formerly numbered 141.) The course is aimed at understanding the social and psychological significance of myth, ritual, and symbolism, with particular attention to anthropological theories and interpretations of religious belief systems.

Ms. Levine

**133Q. Symbolic Systems.** (Formerly numbered 138.) Prerequisite: upper division standing or consent of instructor. An analysis of the anthropological research and theory on the cultural systems of thought, behavior, and communication expressed in a symbolic mode (as distinguished from the discursive, instrumental, and causal modes). Methods for the study of symbolic meaning, including the experiential approach.

Mr. Maquet

**133R. Aesthetic Anthropology.** (Formerly numbered 144.) Prerequisite: upper division standing. Elaboration of a cross-cultural notion of visual aesthetic phenomena that meets the requirements of anthropological research. Aesthetic phenomena as cultural; their integration in a cultural system; their relationships with other elements in the interplay of social forces.

Mr. Maquet

**134. Personality and Cultural Systems: Enculturation.** (Formerly numbered 148.) Prerequisite: upper division standing or consent of instructor. The course examines the relationship between individual and culture by focusing on enculturative learning as modality of personality forms and internal dynamics of culture change. Major emphasis is on cultural influences of cognition, perception, thought processes, socialization, and development of value.

Mr. Wilbert

**135P. Introduction to Psychocultural Studies.** Prerequisite: upper division standing or consent of instructor. A survey of the history and development of psychocultural studies. Topics are examined as they relate to the cross-cultural study of such things as personality, pathology and deviance, fantasy, altered states of consciousness, cognition, perception, motivation, and other similar phenomena.

**135Q. The Individual in Culture.** (Formerly numbered 143.) Prerequisite: upper division anthropology, sociology, or psychology standing. The course considers the balance for freedom and determinism for individuals and societies in the interrelation of personality, social structure, and culture. It surveys the nature and limits of human plasticity; the variability and uniformity of personality within and between cultures; the relation of normal and abnormal conformity and deviance.

**135R. Cross-Cultural Socialization and Childhood.** (Formerly numbered 142.) Lecture, three hours. Introduction to ethnographic data on socialization and child training. Theories explaining cross-cultural variability in socialization practices. Current methods and research topics in the field.

Mr. Weisner

**136P. Ethnology: Field Training.** (Formerly numbered 170B.) Training in ethnographic field methods. Execution of individual and group ethnographic field research projects.

**M136Q. A Laboratory for Naturalistic Observations: Developing Skills and Techniques.** (Formerly numbered M176.) (Same as Psychiatry M112 and Psychology M155.) Prerequisite: consent of instructor. The skill of observing and recording behavior in natural settings is taught, emphasizing field training and practice in observing behavior. Group and individual projects are included. Some of the uses of observations and their implications for research in the social sciences are also discussed.

Mr. Gallimore, Mr. Turner, Mr. Weisner (W)

**137. Ethnography on Film.** (Formerly numbered 179.) Intensive examination of filmed and written ethnographies of a wide range of the world's peoples, with the purposes of (1) comparing visual with written data and evidences and (2) developing criteria for adequate written and film ethnography.

Mr. Moerman

**138. Methods and Techniques of Ethnohistory.** (Formerly numbered 172.) Introduction to the problems and procedures of extracting cultural data from documentary sources and their interpretation and analysis. The relevant documentary sources of various New World regions are selected as case histories to illustrate more concretely the problems and challenges in this major area of anthropological concern.

Mr. Nicholson

**139. Field Methods in Cultural Anthropology.** Lecture, three hours. Prerequisite: upper division standing. Corequisite: course 139L. The course introduces students to the skills and tools of data ascertainment through fieldwork in cultural anthropology. It focuses on techniques, methods, and concepts of ethnographical research and how basic observational information is systematized for presentation, analysis, and cross-cultural comparison.

Mr. Wilbert

**139L. Field Methods in Cultural Anthropology.** Laboratory, three hours. Prerequisite: upper division standing. Corequisite: course 139. The course provides a supervised practicum of field methods in cultural anthropology. Field methods and techniques presented in course 139 are practiced and applied in simulated field situations. Styles of presenting ethnographical information are discussed.

Mr. Wilbert

## Linguistic Anthropology

**M140. Language in Culture.** (Formerly numbered M146.) (Same as Linguistics M146.) Prerequisite: upper division standing or consent of instructor. The study of language as an aspect of culture; the relation of habitual thought and behavior to language; and language and the classification of experience. The course offers a holistic approach to the study of language and emphasizes the relationship of linguistic anthropology to the fields of biological, cultural, and social anthropology, as well as archaeology. (Core course for linguistics field.)

Mr. Kroskrity

**141. The Ethnography of Communication: Introduction and Practicum.** (Formerly numbered 180.) Prerequisite: upper division standing or consent of instructor. The course has two interrelated objectives: (1) to introduce students to the ethnography of communication—the description and analysis of situated communicative behavior—and the sociocultural knowledge which it reflects and (2) to train students to recognize, describe, and analyze the relevant linguistic, proxemic, and kinesic aspects of face to face interaction.

Mr. Kroskrity

**142A-142B. Human Social Ethology.** (Formerly numbered 149A-149B.) Prerequisite: consent of instructor. Course 142A is a strongly recommended prerequisite to 142B. Students make primary records (sound tape, videotape, or film) of naturally occurring social interactions. These are analyzed in class for the interactive tasks, resources, and accomplishments displayed. The course requires laboratory and fieldwork outside of class and minimal fees to offset costs of equipment maintenance and insurance.

Mr. Moerman

**143A. Field Methods in Linguistic Anthropology: Practical Phonetics.** (Formerly numbered 177A.) Practice in elicitation from informants for the purposes of analysis of phonological systems and development of practical transcription, as a preliminary to learning to speak the native language and to the recording of ethnographic materials in native language. No prior experience in linguistics is assumed.

Mr. Kroskrity

**143B. Field Methods in Linguistic Anthropology: Syntax, Semantics, Textual Cohesion.** (Formerly numbered 177B.) Prerequisite: course 143A, equivalent experience, or consent of instructor. The course attempts to supply students with the skills and strategies necessary for conducting investigations into the syntactic, semantic, and textual (or discourse) structures of field languages. Practice with native speakers of various non-Indo-European languages is an important aspect of student participation.

Mr. Kroskrity

**144. American Indian Ethnolinguistics and Sociolinguistics.** Prerequisite: prior coursework in either anthropology, linguistics, or American Indian studies. The course provides an introduction and comparative analysis of the 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.

Mr. Kroskrity

**C145. Afro-American Sociolinguistics: Black English.** Lecture, three hours. Prerequisite: consent of instructor. The course aims to provide basic information on Black American English, an important minority dialect in the United States. The social implications of minority dialects are examined from the perspectives of their genesis, maintenance, and social functions. General problems and issues in the fields of sociolinguistics are examined through a case study approach. Concurrently scheduled with course CM243Q.

Ms. Mitchell-Kernan

## Social Anthropology

**150. Comparative Society.** (Formerly numbered 122A.) Prerequisite: course 5 or 6 or Sociology 1 or consent of instructor. The general principles of the organization of society; the relation of these to the technological complexity and ecological conditions of the culture; the principles of evolutionary development of social systems. (Core course for social field.)

Mr. Goldschmidt

**151. Marriage, Family, and Kinship.** Prerequisite: course 5 or 22. A survey of marital patterns, descent, and family structure in a range of societies. Emphasis on the relationship between kinship and other aspects of the sociocultural system and on the importance of kinship for general anthropological research.

Ms. Levine

**152. Traditional Political Systems.** Prerequisite: course 150 or Sociology 101 or consent of instructor. Political organization in preindustrial societies of varying degrees of complexity. Law and the maintenance of order; corporate groups; ideology. The relations of political institutions to other institutions of society.

Ms. Levine

**152P. Comparative Systems of Social Inequality.** Lecture, three hours. Prerequisite: course 5 or 22 or consent of instructor. Exploration of the cultural causes and consequences of systems of social inequality based on rank, caste, class, ethnicity, or sex, with examples from Asian, Pacific, European, African, and American societies.

Mr. Hammond

**153A-153B. Production and Exchange in Traditional Societies.** A review of economic and ecological approaches to studying organization of production and exchange. Economic life is viewed from three perspectives: adaptation, decision making, and social structure. Comparative theories are discussed in the context of ethnographic evidence from a wide variety of cultural systems. **153A.** Nonstratified Societies; **153B.** Stratified Societies.

Mr. Earle, Mr. Johnson

**154. Principles of Social Structure.** (Formerly numbered 150B.) Prerequisites: course 5 or 22 or Sociology 1 or 101 and upper division standing in anthropology or sociology. The course focuses on the methods and theory which derive from Emile Durkheim in France and Radcliffe-Brown in England. It also discusses the variety of approaches and concerns in social anthropology. Ethnographic material is used to illustrate the methods and concepts used by social anthropologists.

Ms. Levine

**155. Illness in Non-Western Societies.** Prerequisites: course 5 or 22 or Sociology 1 or 101 and upper division standing, or consent of instructor. An analysis of the cultural modes of thought and social structures associated with illness in non-Western societies. Emphasis on the social roles involved in the diagnosis and curing.

Ms. Levine

**156. Comparative Religion.** (Formerly numbered 140.) A survey of various methodologies in the comparative study of religious ideologies and action systems. These include the understanding of particular religions through descriptive and structural approaches, and the identification of social and psychological factors which may account for variation in religious systems cross-culturally.

Mr. Newman

**157. Intentional Communities.** Prerequisite: upper division standing or consent of instructor. Communes and monasteries, ashram and kibbutz are voluntarily joined societal units, offering complete life-styles perceived as alternatives to the mainstream cultures and stressing the affective involvement of the members. Questions such as the following are discussed in a comparative perspective: institutional goals stated in the community's "charter"; system of acquisition or production; internal organization; ideational configurations; individual experience; sociological and psychological functions; criteria of success and failure; subculture and counterculture.

Mr. Maquet

**158. Hunting and Gathering Societies.** (Formerly numbered 112.) Prerequisite: course 5. A survey of hunting and gathering societies. Their distinctive features are examined from both an ecological and cultural viewpoint. The possibility of developing a general framework for synthesizing these two viewpoints is discussed. This synthesis is used as a basis for illustrating the relevance of hunting and gathering societies as an understanding of complex societies.

Mr. Read

## Social Action/Applied Anthropology

**160. Introduction to Social Action Anthropology.** Lecture, three hours. Prerequisites: course 5 or 22 and upper division standing, or consent of instructor. Application of anthropology to such domestic and international issues as poverty, discrimination, public health, mental health, child welfare, education, delinquency and drug abuse, aging, housing and community organization, economic development, environmental protection, population control, diplomacy, warfare and revolution, the protection of native peoples, disaster relief, and refugee resettlement. Survey of career opportunities in applied anthropology.

Mr. Hammond

**160P. Internships in Applied Anthropology.** Prerequisite: course 160. Internships are designed to give students firsthand experience working in agencies in the public and private sectors (e.g., hospitals, mental health clinics, community development agencies, schools, etc.) selected for their relevance to students' prospective professional interests in applied anthropology. Eight to twelve hours in the field are complemented by weekly seminars, field evaluations, and the preparation of a field journal.

Mr. Hammond

**161. Development Anthropology.** Prerequisites: course 5 and upper division standing, or consent of instructor. Comparative study of the peasantization of tribal peoples, the proletarianization of peasants, and the urbanization of ruralities. Particular emphasis on the relation between national, international, and localized sociocultural systems; the theory of social movements. Alternative theoretical constructs are critically discussed.

Ms. Levine

**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.

**M163. Women in Culture and Society.** (Formerly numbered 163.) (Same as Women's Studies M163.) Prerequisite: course 5 or 22. A systematic approach to the study of sex roles from an anthropological perspective. A critical review of relevant theoretical issues supported by ethnographic material from traditional cultures and contemporary American culture.

Ms. Joe, Ms. Levine

**M164. The Afro-American Experience in the United States.** (Same as Afro-American Studies M164.) The course aims to promote understanding of contemporary sociocultural forms among Afro-Americans in the United States by presenting a comparative and diachronic perspective on the Afro-American experience in the New World. It is concerned with the utilization of anthropological concepts and methods in understanding the origins and maintenance of particular patterns of adaptation among Black Americans.

Ms. Mitchell-Kernan (F)

**165. Demographic Problems in Nonindustrial Societies.** Prerequisite: course 5 or 22. The course examines the dynamic interaction between environment, cultural belief, social structure, and population in hunting and gathering, pastoral, horticultural, and agricultural societies. The principle theories of population change and current issues in population policy are considered in light of the anthropological evidence.

Ms. Levine

**166. Comparative Minority Relations.** (Formerly numbered 139.) Prerequisites: courses 5 and 6. Comparative study of minority relations, social discrimination, and prejudice. Emphasis on cross-cultural perspectives and psychocultural analysis. The cases are taken from the U.S., Latin America, India, and other areas. The factors responsible for discrimination and the cultural-psychological consequences of class, caste, or minority status of the individuals are discussed.

Ms. Rodriguez

**167. Urban Anthropology.** (Formerly numbered 160.) Open to upper division majors in the social sciences, and others by consent of instructor. A survey of urbanization throughout the world, with emphasis on urban adaptation of rural migrants. Special focus on the problems of rural-urban migration of ethnic minority groups and subsequent adaptation of them within the United States explored in terms of the methods and perspectives of anthropology.

Ms. Rodriguez

**167P. 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.

Mr. Johnson

**M168. Health in Culture and Society.** (Formerly numbered M158.) (Same as Nursing M158.) Prerequisite: upper division standing. An examination of the 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. Civilization of Sub-Saharan Africa.** (Formerly numbered 113.) Prerequisite: upper division standing or consent of instructor. A comprehensive overview of the sociocultural world of sub-Saharan Africa. This world is interpreted as a broad cultural unit with its specific African configurations and as a plurality of civilizations, each based on a particular association of an environment (dry savanna, grassland, equatorial forest, highlands) with a dominant technique of acquisition/production (hunting/gathering, cereals growing, cattle herding, commercial crops, industry).

Mr. Maquet

### North America

**172P. North American Indian Cultures.** (Formerly numbered 106C.) An examination of American Indian cultures from early historic time to modern development.

Mr. Oswalt

**172Q. Cultures of the California Indians.** (Formerly numbered 106A.) An examination of the cultural diversity of the Indians of California: their technology, social organization, and religions.

Mr. Meighan

**172R. Cultures of the Pueblo Southwest.** (Formerly numbered 106H.) Prerequisite: course 5, 6, 22, upper division standing, or consent of instructor. A survey of ethnographic and ethnohistorical research of the Pueblo Indians (Hopi, Zuni, Tanoan, and Keresan) and their immediate neighbors. The course provides basic information on the history, languages, social organization, and traditional cultural systems of these groups.

Mr. Kroskrity

**172S. Theory and Method in the Pueblo Southwest.** (Formerly numbered 106I.) Prerequisite: course 172R or consent of instructor. The course focuses on selected problems in Southwestern ethnology, viewing the Pueblo Southwest as an important locus for anthropological theory and method. Such theories as early culture and personality theory, functionalism, and symbolic anthropology are explored in their application to the Pueblos and the Navajo. Methodological considerations include the use of life histories, the problem of objectivity, and the use of native languages as field tools.

Mr. Kroskrity

**M172T. Ethnohistory of Hispanic Cultures in the U.S. Southwest.** (Formerly numbered 172T.) (Same as Chicano Studies M172T.) Prerequisite: course 5 or 22 or consent of instructor. An ethnography of the social and cultural adaptations of the Hispanic peoples in the U.S. Southwest: their respective social organization, economic and political institutions, sacred and secular belief systems, and expressive cultures.

**172U. Eskimos.** (Formerly numbered 106F.) Prerequisite: upper division standing. A survey on historical, ethnographic, and contemporary Eskimo life stressing their importance in anthropological theory and practice. Particular emphasis on Eskimo origins, technology, and modern administration.

Mr. Oswalt

### Middle America

**173P. Cultures of Middle America.** (Formerly numbered 105B.) An introduction to the social and cultural anthropology of Middle America, with emphasis on indigenous communities. Aspects of economics, society, politics, and religion are reviewed in light of their historical development and current distribution.

**173Q. Latin American Communities.** (Formerly numbered 105C.) An overview of the social and cultural anthropology of small communities in Latin America. Similarities and contrasts in social organization and interpersonal relations are described in the context of economic, political, and cultural environments.

Mr. Johnson

### South America

**174P. Ethnography of South American Indians.** (Formerly numbered 105A.) Introduction to the ethnography of South American Indians, with special emphasis on Lowland South America. The course surveys the history and development of man and society in this world area and examines exemplary cultures symptomatic of the various levels of cultural achievement.

Mr. Wilbert

**174Q. Ethnology of South American Indians.** Prerequisite: course 174P or consent of instructor. Introduction to the ethnology of South American Indians, with special emphasis on Lowland South America. The course details the methods and theories applied to the study of man and culture on the subcontinent, including biological anthropology, linguistics, and sociocultural anthropology.

Mr. Wilbert

### Asia

**175P. Civilizations and Cultures of Southeast Asia.** (Formerly numbered 103B.) An introduction to the understanding and appreciation of the peoples, cultures, and societies of Philippines, Indonesia, Malaysia, Thailand, Burma, Laos, Cambodia, and Vietnam seen against their historical and ecological backgrounds. Slides and other media are used along with texts, lectures, and discussion.

Mr. Moerman

**175Q. Civilizations of South Asia.** (Formerly numbered 103A.) Examination of the civilizations of Sri Lanka, India, Pakistan, Bangladesh, and the Himalayan states. Ideational systems, social institutions, and techniques of production are discussed in the framework of a few contemporary civilizations, each focused on a major religious tradition (Hinduism, Buddhism, and Islam).

Ms. Levine, Mr. Maquet

**175R. Civilizations of Inner Asia.** (Formerly numbered 103E.) The course provides an 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 the status of women, religion and the social order in Hindu-Buddhist culture contact zone, and current problems of modernization.

Ms. Levine

**175S. Japan.** (Formerly numbered 103C.) Prerequisite: course 22. An 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.

### Middle East

**176. Cultures of the Middle East.** (Formerly numbered 110.) Prerequisite: course 5 or consent of instructor. The course delineates the area of "Arab Peoples" through an examination of their historical background, their language, and their belief system. It attempts to uncover the structural principles shared by the Arab people of North Africa and Southwest Asia which underlie Arab culture.

### Pacific

**177. Cultures of the Pacific.** (Formerly numbered 108.) The course covers the four major culture areas of Australia, Melanesia, Polynesia, and Micronesia. General geographical features, prehistory, and language distribution of the whole region are discussed. Distinctive sociocultural features of each culture area are presented in the context of their adaptive significance.

Mr. Newman

## History and Theory

**182. The History of Anthropology.** (Formerly numbered 182A-182B.) A brief survey of the development of Western social science, particularly anthropology, from Greek and Roman thought to the emergence of evolutionary theory and the concept of culture in the late 19th century. The course examines the "root paradigm" of Western social science and its influence on such notables as Durkheim, Freud, Hall, Lombroso, Marx, Piaget, Terman, and others. It in turn considers how this influences ethnocentrism and Eurocentrism, sexism, racism, the perception of deviance, and our view of culture in general.

**183. History of Archaeology.** Prerequisite: at least one upper division course in archaeology or consent of instructor. The development of world archaeology from the Renaissance to the present. Particular care is taken to show how each of the major branches of archaeology has evolved a special character determined by the peculiarities of its own data, methods, and intellectual affiliation.

Mr. Sackett

**184. History of Human Evolutionary Theory.** The men, the events, and the spirit of the time which mark man's attempts to understand his origins and diversity.

Mr. Williams

**185. History of Social Anthropology.** (Formerly numbered 150A.) Prerequisites: course 5 or 22 or Sociology 1 or 101 and upper division standing in anthropology or sociology. A systematic survey of the development of social anthropology in France and Britain from the Enlightenment to the present. Reviews major early concepts of French sociology and British structuralist-functionalism and current concerns in social theory.

Ms. Levine

**186A-186B. Quantitative Methods and Models in Anthropology.** (Formerly numbered 173A-173B.) Prerequisite: upper division standing. The course is designed to provide an introduction to quantitative methods of data analysis and the modeling of sociocultural systems. **186A** emphasizes methods of data analysis and topics such as data description, sampling, estimation procedures, and hypothesis testing. **186B** covers topics from statistical modeling (e.g., linear regression models) and deterministic modeling (e.g., network models, kinship structures, systems, models).

Mr. Read

**187. Theory and Method in Sociocultural Anthropology.** Prerequisite: at least eight units of upper division social and cultural anthropology. A review of the major theoretical orientations in sociocultural anthropology, with special emphasis on the research methods that have been found most useful in each. The relevance of philosophy of science to sociocultural anthropology is examined, and theoretical and methodological links to other social sciences are identified.

Mr. Johnson

## Special Studies

**191. Writing for Anthropology.** (Formerly numbered 181.) Prerequisite: course 5. Students learn 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 the organization and presentation of a scholarly argument.

Mr. Earle

**197H. Departmental Honors Seminar.** (Formerly numbered 198H.) Seminar, three hours. Prerequisites: a 3.5 GPA in at least two upper division anthropology courses and eligibility for Letters and Science honors status, or consent of instructor. The course consists of five discussion segments dealing with major debates, questions, and issues in each of the departmental fields (social, cultural, biological, and linguistic anthropology and archaeology). Each week readings on a major topic are discussed in a seminar format.

**199. Special Studies in Anthropology (2 to 8 units).** Prerequisite: consent of instructor. Eight units may be applied toward the upper division anthropology courses required for the major.

**199HA. Directed Studies for Honors.** Discussion, three hours. Prerequisite: honors major in anthropology. Discussion meetings with the adviser to help define the research and preparation for the project. Extensive reading and research in the field of the proposed honors thesis. The project often involves summer fieldwork. In Progress grading (credit to be given only on completion of course 199HC).

(Sp)

**199HB. Directed Studies for Honors.** Prerequisites: course 199HA and honors major in anthropology, or consent of instructor. Must be taken in Fall Quarter of the senior year. Continued reading and research directed toward the analysis and presentation of data in a draft of the honors thesis (no more than 30 pages). In Progress grading (credit to be given only on completion of course 199HC).

(F)

**199HC. Directed Studies for Honors.** Prerequisites: courses 199HA, 199HB, and honors major in anthropology, or consent of instructor. Preparation of the final version of the honors thesis (no more than 30 pages) that argues a central thesis of anthropological relevance. Must be submitted by the last day of class in Winter Quarter of the senior year.

(W)

## 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 and may be repeated for credit by consent of instructor and graduate counselor.

## Archaeology

**210. Analytical Methods in Archaeological Studies.** (Formerly numbered 210A.) Prerequisites: one quarter of statistics and consent of instructor. The course covers data analysis procedures in archaeology. Emphasis is on the conceptual framework for the analysis of archaeological data. It begins at the level of the attribute and ends at the level of the region.

Mr. Read

**211. Regional Analysis in Archaeology.** (Formerly numbered 210B.) Prerequisite: consent of instructor. Course 210 is not prerequisite to 211. The course surveys the 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.

Mr. Earle

**212P. Selected Topics in Hunter-Gatherer Archaeology.** (Formerly numbered 214E.) Prerequisite: consent of instructor. Regional studies in the development of early human culture. May be repeated for credit. Mr. Meighan

**212Q. Problems in Southwestern Archaeology.** (Formerly numbered 205.) Prerequisite: consent of instructor. A consideration of prehistoric cultural systems in the American Southwest, with emphasis on the description and explanation of organizational variability and change. Specific research questions vary with each course offering. May be repeated for credit. Mr. Hill

**212R. Problems in Oceanic Archaeology.** Lecture, three hours. Prerequisite: consent of instructor. The prehistory of Oceania is considered. Content may vary, but problems to be considered include the history and process of island occupation, island adaptation, and the evolution of social stratification. May be repeated for credit. Mr. Earle

**213. Selected Topics in Problems in Old World Archaeology.** (Formerly numbered 214F.) Prerequisite: consent of instructor. May be repeated for credit. Mr. Sackett

**214. Selected Topics in Prehistoric Civilizations of the New World.** (Formerly numbered 214G.) Prerequisite: consent of instructor. The Mesoamerican and Andean civilizations normally constitute the major focus of the seminar. May be repeated for credit. Mr. Donnan, Mr. Nicholson

**215. Field Training in Archaeology (4 to 8 units).** (Formerly numbered 214J.) 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. Mr. Meighan

**M216. Dating Techniques in Environmental Sciences and Archaeology.** (Formerly numbered M214I.) (Same as Geography M278.) Lecture, three hours. Prerequisite: consent of instructor. A 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. Mr. Berger

**217. Explanation of Societal Change.** (Formerly numbered 234.) Prerequisite: consent of instructor. Examination of the processes of societal evolution, emphasizing the usefulness of a variety of explanatory models drawn from general systems theory, ecology, anthropology, and other sources. Specific research questions vary with each course offering. May be repeated for credit. Mr. Hill

**218. Historical Reconstruction and Archaeology.** (Formerly numbered 214H.) Prerequisite: consent of instructor. Interpretation of historical development through archaeological research. Application of ethnohistory to archaeological problems. May be repeated for credit. Mr. Meighan, Mr. Nicholson

**M219A-M219B. Graduate Core Seminar in Archaeology (6 units each).** (Same as Archaeology M201A-M201B.) Seminar, three hours. Required of anthropology students in the archaeology field. Seminar discussions based on a carefully selected list of 30 to 40 major archaeological works. These core courses provide the student with a foundation in the breadth of knowledge required by a professional archaeologist. The courses comprise archaeological historiography, a survey of world archaeology, and archaeological techniques. Emphasis is on an appreciation of the multidisciplinary background of modern archaeology and the relevant interpretative strategies. May be repeated for credit by consent of adviser.

## Biological Anthropology

**220. Current Problems in Biological Anthropology.** Prerequisite: consent of instructor. A detailed examination of current research in biological anthropology (specific topics to be announced). Emphasis on the nature of hypotheses and their testing in ongoing student and faculty research. May be repeated for credit.

**221A-221B. The Fossil Evidence for Human Evolution.** Prerequisite: consent of instructor. Course 221A is prerequisite to 221B. No credit will be allowed for course 221A without 221B. An examination and analysis of the fossil evidence for man's evolution. Ms. Kennedy

**222P. Population Genetics of Man.** (Formerly numbered 222A.) Prerequisite: consent of instructor. An introductory course in statistics. The study of population concepts, probability, the conditions of gene frequency equilibria, and factors causing gene frequency change. Mr. Williams

**M222Q. Probability Models and Statistical Methods in Genetics.** (Formerly numbered M222B.) (Same as Biomathematics M246.) Lecture, three hours. Prerequisites: course 222P, Mathematics 3A, two quarters of statistics, graduate standing. An introduction to probability models and statistical methods in genetics. Maximum likelihood methods for estimated genetic parameters are introduced and discussed in detail. Mr. Read (W)

**M222R. Modeling in Genetic Analysis.** (Formerly numbered M222C.) (Same as Biomathematics M207.) Lecture, three hours. Prerequisites: course M222Q and graduate standing, or consent of instructor. Basic concepts of human genetics, with emphasis on methods of computer-oriented genetic analysis. Topics include segregation analysis, genetic linkage, polygenic (quantitative) models, and population structure. Ms. Spence (F)

**222S. Population Genetics.** (Formerly numbered 229E.) Prerequisite: consent of instructor. A consideration of some of the special methods of the genetics of human populations and their current application in research. May be repeated for credit. Mr. Williams

**223. The Roots of Human Behavior.** (Formerly numbered 291.) Prerequisite: consent of instructor. An examination of the behavior of living nonhuman primates and of the evolution and biological basis of human behavior. May be repeated for credit.

**224. Selected Topics in Field Training in Biological Anthropology.** Prerequisite: consent of instructor. Examination of current hypotheses in student and faculty field research. Emphasis on new approaches to field and field-oriented laboratory investigations of primate ecology, behavior, anatomy, physiology, and evolution (specific topics to be announced). May be repeated for credit. Mr. Russell

**225. Analysis of Biological Anthropology Field Data.** Prerequisite: course 224, other field training course, or consent of instructor. Pragmatic and theoretical aspects of research on wild primates from planning and expedition through final data analysis (discussion topics to be announced). May be repeated for credit. Mr. Russell

**226. Biological Anthropology Colloquium.** (Formerly numbered 229F.) Selected topics on the status of current research in biological anthropology. May be repeated for credit. S/U grading.

**227. Monkeys, Apes, and Language.** Lecture, three hours. Prerequisite: consent of instructor. A review of recent research on animal communication and its relation to the evolution of human language. Topics range from the neurophysiological control of vocalizations in a variety of species to the social function of communication, particularly among free-ranging primates. The "ape-language" projects are examined in detail. Mr. Seyfarth

**228. Mating Systems in Birds and Mammals.** Lecture, three hours. Prerequisite: consent of instructor. The seminar surveys the evolution of different mating systems in birds and mammals, with special focus on nonhuman primates. Emphasis is on social and ecological selective pressures acting on male and female reproductive behavior and partial investment. The course also considers the validity of applying evolutionary theory to human reproductive behavior. Ms. Cheney-Seyfarth

**M228A-M228B. Seminar in Behavioral Biology.** (Same as Biology M252A-M252B, Education M229A-M229B, Physiology M252A-M252B, Psychiatry M291A-M291B, and Psychology M230A-M230B.) Discussion, six hours. Prerequisite: consent of instructor. Basic seminar for graduates interested in behavioral biology. An interdisciplinary course dealing with behavioral research in anthropology, biology, psychology, and the medical sciences. Proximate causation, development, and evolution in animal behavior. Physiology and the organization of behavior. Vertebrate social organization. Animal communication. The application of natural selection theory to human social behavior. In Progress grading.

**M229A-M229B-M229C. Seminar: Selected Topics in Human Ethology.** (Same as Education M281A-M281B-M281C and Psychiatry M279A-M279B-M279C.) Ethologists now use successful animal behavior methodology to study human behavior. When is this appropriate, how can it contribute? Each quarter covers one level of analysis: describing and recording behavior; causation; development, especially longitudinal studies; adaptation; evolutionary origins. Mr. Blurton Jones (F,W,Sp)

## Cultural Anthropology

**230P. Ethnology.** (Formerly numbered 269F.) Prerequisite: consent of instructor. A seminar on ethnological method and theory concentrating on ideational systems. May be repeated for credit. Mr. Wilbert

**230Q. Cultural Anthropology.** (Formerly numbered 269E.) Prerequisite: consent of instructor. Special problems in cultural anthropology. May be repeated for credit. Mr. Goldschmidt

**231. Asian Americans: Personality and Identity.** (Formerly numbered 253.) Prerequisite: graduate standing. The seminar examines the effect of class, caste, and race on the Asian American personality within the framework of anthropological theories.

**M232P. Cultural Modes of Thought.** (Formerly numbered 232P.) (Same as Psychiatry M212.) Lecture, three hours. Prerequisite: consent of instructor. An examination of the influences of culture on learning, perception, thinking, and intelligence. The course covers the fields of cross-cultural psychology in addition to cognitive anthropology. The focus is on learning and thinking in non-Western cultures but includes problems of education in ethnic areas within the U.S. Mr. Gallimore, Mr. Price-Williams

**232Q. Myth and Ritual.** (Formerly numbered 269Q.) Prerequisite: consent of instructor. The seminar discusses nature and function of myth and ritual in non-industrialized societies. Its associated value systems and philosophies are examined as infrastructure of culture rather than as phenomena proposed by structuralist rationalism and cultural material empiricism. May be repeated for credit. Mr. Wilbert

**M232R. South American Folklore and Mythology Studies.** (Formerly numbered M252.) (Same as Folklore M257.) Prerequisite: course 174P or consent of instructor. An examination of oral traditions and related ethnological data from various South American Indian societies against the background of the religious systems of these people. Mr. Wilbert

**233P. Symbolic Anthropology.** (Formerly numbered 269P.) 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 the questions to be selected for analysis and discussion. May be repeated for credit. Mr. Maquet

**233Q. Aesthetic Anthropology.** (Formerly numbered 269R.) Prerequisite: course 133R or consent of instructor. Selected questions concerning the visual aesthetic phenomena in their relationships with the sociocultural context are examined in depth. May be repeated for credit. Mr. Maquet

**M234A-M234B. Seminar in Psychocultural Studies.** (Formerly numbered 234A-234B.) (Same as Psychiatry M210A-M210B.) Lecture, three hours. Prerequisite: consent of instructor. The two-quarter sequence is devoted to the present state of research in psychocultural studies. It surveys work in child development and socialization, personality, psychobiology, transcultural psychiatry, deviance, learning, perception, cognition, and psychocultural perspectives on change. Mr. Edgerton, Mr. Price-Williams

**M234P. Transcultural Psychiatry.** (Formerly numbered M244.) (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 the questions of "sick" societies. May be repeated for credit. Mr. Kennedy

**M234Q. Psychological Anthropology.** (Formerly numbered M269K.) (Same as Psychiatry M272.) Lecture, three hours. Prerequisite: consent of instructor. The course deals with 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. The course also deals with questions relating to symbolic and unconsciousness process as they are related to culture. Topics vary from quarter to quarter. May be repeated for credit. Mr. Edgerton

**M234R. Sociocultural Perspectives on Mental Retardation.** (Formerly numbered 234R.) (Same as Psychiatry M211.) Lecture, three hours. Prerequisite: consent of instructor. The seminar explores concepts such as "intelligence," "competence," and "adaptive behavior" in varying non-Western societies as background to the study of the phenomenon of mental retardation in the West, particularly the United States. Topics include cross-cultural perspectives, the history of institutional confinement, the policies of deinstitutionalization and normalization, and current issues involving adaptation and "quality of life." Also to be discussed are topics such as communicative competence, work, crime, deviance, sexuality, and marriage. May be repeated for credit. Mr. Edgerton

**M235A-M235B. The Individual in Culture.** (Formerly numbered 235A-235B.) (Same as Psychiatry M213A-M213B.) Lecture, three hours. Course M235A is prerequisite to M235B. In Progress grading.

**M236P. Selected Topics in the Cross-Cultural Study of Socialization and Childhood.** (Formerly numbered 236P.) (Same as Psychiatry M214.) Lecture, three hours. Prerequisite: consent of instructor. Methods, ethnographic data, and theoretical orientations. Emphasis on current research. May be repeated for credit. Mr. Weisner

**M236Q. A Laboratory for Naturalistic Observations: Developing Skills and Techniques.** (Formerly numbered M260.) (Same as Education M222A and Psychiatry M235.) Lecture, three hours. Prerequisite: consent of instructor. The skill of observing and recording behavior in natural settings is taught, emphasizing field training and practice in observing behavior. Some of the uses of observations and their implications for research in the social sciences are also discussed. Students are expected to integrate observational work into their current research interests. May be repeated for credit.

Mr. Gallimore, Mr. Turner, Mr. Weisner

**M237A-M237B. Basic Core Courses in Mental Retardation Research (2 units each).** (Same as Psychiatry M219A-M219B.) Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. Required of all MRRC trainees. The course provides a systematic overview of mental retardation and the sciences basic to this field of study. It acquaints students with the language, methods, aims, and contributions of the various disciplines that contribute to the field. The last two weeks of the second quarter are spent discussing and preparing multidisciplinary research designs with potential for the prevention or amelioration of mental retardation. S/U grading.

Mr. Buchwald, Mr. Edgerton

**239P. Selected Topics in Field Training in Ethnography (4 to 8 units).** (Formerly numbered 265.) Prerequisite: consent of instructor. Supervised collection of ethnographic information in the field. Students spend full time in the field for most of the quarter.

**239Q. Analysis of Field Data.** (Formerly numbered 263.) Prerequisite: course 239P or other field training course. Supervised analysis of ethnographic materials by students who have participated in a related field training course. Students work with their own as well as general project data in the preparation of articles for professional journals. May be repeated for credit.

## Linguistic Anthropology

**240. Seminar in Language and Culture.** (Formerly numbered 200.) Prerequisite: consent of instructor. The development of anthropological linguistics, modern linguistic theory, and its application to the study of nonlinguistic aspects of culture, including relationship of language to world view, comparative historical linguistics to prehistory, lexico-statistics, semantic analysis, linguistic acculturation, sociolinguistics, and ethnolinguistics. Mr. Kroskrity

**M241. Topics in Linguistic Anthropology.** (Formerly numbered M201C.) (Same as Linguistics M246C.) Prerequisite: consent of instructor. Problems in relations of language, culture, and society. May be repeated for credit.

**242. The Ethnography of Communication.** Prerequisite: graduate standing or consent of instructor. A seminar devoted to examining representative scholarship from the fields of sociolinguistics and the ethnography of communication. Particular attention to theoretical developments including the relationship of the 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. Mr. Kroskrity

**243P. American Indian Ethnolinguistics and Sociolinguistics.** Prerequisites: prior coursework in either anthropology, linguistics, or American Indian studies, and consent of instructor. The course examines the 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. Mr. Kroskrity

**CM243Q. Afro-American Sociolinguistics: Black English.** (Same as Afro-American Studies M200D.) Lecture, three hours. Prerequisite: consent of instructor. The seminar aims to provide basic information on Black American English, an important minority dialect in the United States. The social implications of minority dialects are examined from the perspectives of their genesis, maintenance, and social functions. General problems and issues in the fields of sociolinguistics are examined through a case study approach. Concurrently scheduled with course C145. Students are required to conduct research in consultation with the instructor, as well as participate in group discussion. Ms. Mitchell-Kernan

**244. Topics in Language Socialization.** (Formerly numbered 202.) Prerequisite: consent of instructor. Selected topics in the study of language socialization, with a special focus on the development of discourse skills and the mastery of situationally appropriate speech. May be repeated for credit. Ms. Mitchell-Kernan

**245. Linguistic and Intracultural Variation.** (Formerly numbered 203.) Prerequisite: consent of instructor. The course addresses the problem of variation as it impinges on the disciplines of anthropology and linguistics. Among the objectives of the course are the following: to acknowledge the importance of speech variation in anthropological linguistics research, to critically assess a broad and representative sample of modern scholarship devoted to the study of intra-individual and interindividual variation, and to evaluate the utility and potential applicability of recent linguistic models to anthropological linguistics and anthropological theory. Mr. Kroskrity

**246. Research Design and Field Training in Linguistic Anthropology.** (Formerly numbered 204A.) Prerequisite: consent of instructor. Supervised collection of linguistic information in the field. Students spend full time in the field for most of the quarter. May be repeated for credit. S/U or letter grading.

**247. Analysis of Linguistic Field Data.** Prerequisite: course 246, other field training course, 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 the preparation of articles for professional journals. May be repeated for credit. S/U or letter grading.

**M247A. Ethnographic Film.** (Same as Theater Arts M209C.) Lecture/discussion, four hours; laboratory, to be arranged. Prerequisites: graduate standing and consent of instructor. Discussion of the history, methods, and criteria for the use of film as a medium for the preservation and communication of human cultures. Filming assignments are given to increase the understanding of the theoretical and practical aspects of ethnographic filming. The potential of both film and video for fieldwork is considered. Mr. Boehm, Mr. Hawkins, Mr. Moerman (F)

**248. Practicum in a Field Language (4 to 8 units).** (Formerly numbered 266.) Prerequisite: consent of instructor. Intensive training in an indigenous language as preparation for work in the field.

## Social Anthropology

**250. Social Anthropology.** (Formerly numbered 231.) Prerequisite: consent of instructor. Intensive examination of current theoretical views and literature. Ms. Levine

**251P. Cultural Ecology.** (Formerly numbered 269H.) Prerequisite: consent of instructor. May be repeated for credit. Mr. Johnson

**251Q. Cultural Ecology of Lowland South America.** (Formerly numbered 251.) Prerequisite: consent of instructor. Seminar on traditional adaptations to the lowland environment, with special emphasis on the tropical forest. Explanatory principles accounting for cultural differences are explored, and special attention is given to effects of modern changes on the people and their environment. Mr. Johnson



**252. Special Topics in Social Process.** (Formerly numbered 237.) Prerequisite: consent of instructor. Selected aspects of the literature on cultural and social process. The significance of repeated and/or cumulative sequences of events in a variety of social and cultural contexts. Understanding approaches compared with normative concepts and ideal models. May be repeated for credit.

**252P. Social Inequality.** Lecture, three hours. Prerequisites: course 152P, upper division standing with consent of instructor. Seminar participants analyze particular problems in understanding systems of structured social inequality based on rank, caste, class, ethnicity, or sex. Participants serve as seminar discussion leaders and present a research paper. S/U or letter grading. Mr. Hammond

**253. Economic Anthropology.** (Formerly numbered 269L.) Prerequisite: consent of instructor. May be repeated for credit.

**254. Kinship.** (Formerly numbered 269M.) Prerequisite: consent of instructor. May be repeated for credit. Ms. Levine

**255. Comparative Political Institutions.** (Formerly numbered 269T.) Prerequisite: consent of instructor. May be repeated for credit.

**257. Social Interaction.** (Formerly numbered 270F.) Prerequisite: consent of instructor. The course focuses on issues for ethnographic theory and practice raised by developments in anthropological, sociological, psychological, linguistic, and ethnological contributions to our understanding of the organization of face-to-face behavior. May be repeated for credit. Mr. Moerman

**258. Comparative Studies of Intentional Communities.** (Formerly numbered 269S.) Prerequisite: course 157 or consent of instructor. Questions concerning the ideational, societal, and individual significance of intentional communities are selected and discussed in depth, with reference to particular collectivities. May be repeated for credit. Mr. Maquet

## Social Action/Applied Anthropology

**260. Urban Anthropology.** (Formerly numbered 236.) Prerequisite: course 167 or consent of instructor. An intensive anthropological examination of the urban setting as a human environment.

**261. Comparative Minority Relations.** (Formerly numbered 269O.) Prerequisite: consent of instructor. An analysis of the major theoretical and methodological issues in the study of minority relations from a comparative perspective. Consensus, conflict, and pluralistic constructs are analyzed and their strengths as explanatory devices investigated as they pertain to dependent populations in North America, Latin America, Southern Africa, India, Asia, and the Euro-Slavic continent. May be repeated for credit.

Ms. Rodriguez

**261P. Issues in Development Anthropology.** Lecture, three hours. Prerequisite: course 160 or 161 or consent of instructor. Seminar participants analyze selected problems in economic development in Third World countries in the context of related issues such as health and education, environmental protection, housing and urbanization, promotion of local participation, women's roles, protection of indigenous minorities, infrastructural development, diplomacy, warfare and revolution, and migration and refugee resettlement, with recommendations for action.

Mr. Hammond

**262. The Cultural Context of Health Care.** (Formerly numbered 241.) Prerequisite: consent of instructor. Concepts and treatment of illness and disease in cross-cultural perspectives, with emphasis on research problems and methods. The course introduces the anthropological approach to health-related research, then explores the intersections of anthropology and problem areas in public health and psychiatry (such as epidemiology, fertility regulation, socialization, and developmental disabilities).

Mr. Johnson

**M262P. Culture and Human Reproduction.** (Same as Public Health M276.) Lecture, two hours; discussion, two hours. Prerequisites: Public Health 110, 112, 172, 474, or equivalent, and consent of instructor. Exploration of human behavior related to reproduction. Cross-cultural exploration of biological and behavioral factors, with particular reference to human adaptation. Ms. Scrimshaw

**M263. Medical Anthropology.** (Formerly numbered M269N.) (Same as Nursing M217.) Lecture, three hours. Prerequisite: course M168 or consent of instructor. Any of the topics covered in course M168 are selected each quarter for intensive literature review and independent projects. May be repeated for credit.

**264. Ethnography of the Mexican/Chicano People in North America.** (Formerly numbered 269Z.) Prerequisite: graduate standing or consent of instructor. Recommended: course M172T. A research course on topics in the ethnography of the Mexican/Chicano people in North America, including social organization, economic and political systems, belief and value systems, linguistic and expressive adaptations, and individuals and their cultural contexts. Topics vary according to interest and are announced prior to the beginning of the quarter. May be repeated for credit. Ms. Rodriguez

**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. Mr. Meighan

**M266. Medical Anthropology in Public Health.** (Same as Public Health M271.) Prerequisites: Public Health 110 and 112, one upper division course in psychology, sociology, or anthropology, or equivalent, and consent of instructor. Cross-cultural aspects of human behavior as they relate to perception, treatment, incidence, and prevalence of disease and illness. Ms. Scrimshaw

**M267B-M267C. Ethnographic Film Direction (4 or 8 units each).** (Formerly numbered M294B-M294C.) (Same as Theater Arts M265A-M265B.) Lecture, four hours; laboratory, to be arranged. Prerequisites: course M247A, graduate standing, and consent of instructor. Further consideration of the methods and criteria for the use of film as a medium for the preservation of communication of human cultures. Production of films and videotapes on topics chosen by students. Mr. Boehm, Mr. Hawkins, Mr. Moerman (W, M267B; Sp, M267C)

**268. Issues in Social Action Anthropology.** Prerequisites: course 160, upper division standing with consent of instructor. Seminar participants analyze specific problems in social action anthropology and make recommendations for their resolution. Emphasis is on professional preparation for careers in applied anthropology. Mr. Hammond

**M269. Contemporary Issues of the American Indian.** (Same as American Indian Studies M200C.) The seminar is designed to introduce students to the most important issues facing American Indians as individuals, communities, tribes, and organizations in the contemporary world. It builds on the historical background presented in American Indian Studies M200A and the cultural and expressive experience of American Indians presented in American Indian Studies M200B. Ms. Heth, Ms. Joe

**M269P. Cultural World Views of Native America.** (Same as American Indian Studies M200B.) Seminar, three hours. The course explores written literary texts drawn from oral cultures and expressive cultural forms — dance, art, song, religious and medicinal ritual — in selected Native American societies. The instructors introduce and review methodological approaches to the study of native cultures, from structural anthropology, ethnomusicology, and folklore to modern literary analyses and direct fieldwork. Ms. Heth, Mr. Lincoln

## Regional Cultures

**271. African Cultures.** (Formerly numbered 254.) Prerequisite: consent of instructor. Survey of the literature and problems of African culture.

**M272. Indians of South America.** (Formerly numbered 250A.) (Same as Latin American Studies M250A.) Lecture, three hours. Prerequisite: consent of instructor. Survey of the literature and research topics related to Indian cultures of South America. May be repeated for credit. Mr. Wilbert

**273. Cultures of the Middle East.** (Formerly numbered 255.) Prerequisite: course 176 or consent of instructor. Survey of the literature and problems of the various cultures of the Middle East.

**274. Cultures of the Pacific Islands.** (Formerly numbered 269Y.) Prerequisite: consent of instructor. Topics in the contemporary sociocultural anthropology and classic ethnography of Melanesia, Polynesia, and Micronesia. May be repeated for credit. Mr. Newman

## History and Theory

**280. Anthropology Theory.** (Formerly numbered 230A-230B.) Prerequisite: graduate standing in anthropology or consent of instructor. The course examines the range of theories that anthropologists have employed in describing and explaining variability in sociocultural phenomena. The organization of particular theories, as well as issues that separate divergent theories, is explored. Emphasis is on up-to-date examples of different theoretical perspectives. Major perspectives include evolutionism, cultural ecology, British functionalism, French functionalism, structuralism, cultural and personality, psychological anthropology (Freudian, neo-Freudian, non-Freudian), behavioral anthropology, cognitive anthropology, and ethnosemantics.

**281. Selected Topics in the History of Anthropology.** Prerequisite: consent of instructor. The seminar deals in depth with particular problems in the history of anthropology as dictated by the interests of students and faculty. May be repeated for credit.

**282. Research Design in Cultural Anthropology.** (Formerly numbered 261.) Prerequisite: consent of instructor. Primarily intended for graduate students preparing for fieldwork. The unique position of anthropology among the sciences and the resulting problems for scientific research design are discussed. Lectures and readings review typical research problems and appropriate methods. Students prepare their own research designs and present them for class discussion. Mr. Johnson

**283. Mathematical Models in Anthropology.** (Formerly numbered 292.) Prerequisite: consent of instructor. The course is organized around current topics and issues in mathematical anthropology. An overview of a variety of mathematical approaches relevant to theory, systems theory, decision theory, Markov processes, etc., is presented and discussed. Mr. Read

**M284. Qualitative Research Methodology.** (Same as Public Health M273.) Discussion, three hours; laboratory, one hour. Prerequisites: Public Health 100A and 125 or 181, an undergraduate or graduate course in social psychology, anthropology, or sociology, and 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. Ms. Scrimshaw

**285. Society and Culture in the History of the Social Sciences.** Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. The course investigates the contours of the concepts of society and culture and their functions in various social sciences. It focuses on works of particular importance in the moral and political sciences (e.g., works of Vico, Montesquieu, Durkheim, Weber, and DeTocqueville) and the ways in which these are seen and evaluated from the vantage points of different disciplines. Mr. Kilborne

**291. The Roots of Human Behavior.** (Formerly numbered 299.) Prerequisite: consent of instructor. An examination of the behavior of living nonhuman primates and of the evolution and biological basis of human behavior.

## Special Studies

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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 adviser and Graduate Dean, and host campus instructor, department Chair, and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. 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 Examination (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 the qualifying examinations and ordinarily take no other coursework.

# Applied Linguistics (Interdepartmental)

3308 Rolfe Hall, 825-4631

## Professors

Stephen R. Anderson, Ph.D. (*Linguistics*)  
Raimo A. Anttila, Ph.D. (*Linguistics*)  
J. Donald Bowen, Ph.D. (*English*)  
William Bright, Ph.D. (*Linguistics*)  
Russell N. Campbell, Ph.D. (*English*), *Chair*  
Marianne Celce-Murcia, Ph.D. (*English*)  
Victoria A. Fromkin, Ph.D. (*Linguistics*)  
Evelyn R. Hatch, Ph.D. (*English*)  
Edward L. Keenan, Ph.D. (*Linguistics*)  
Peter Ladefoged, Ph.D. (*Phonetics*)  
John F. Povey, Ph.D. (*English*)  
Paul M. Schachter, Ph.D. (*Linguistics*)  
Robert P. Stockwell, Ph.D. (*Linguistics*)  
Sandra A. Thompson, Ph.D. (*Linguistics*)  
Clifford H. Prater, Ph.D., *Emeritus* (*English*)

## Associate Professors

Roger W. Andersen, Ph.D. (*English*)  
George D. Bedell, Ph.D. (*Linguistics*)  
Thomas J. Hinnebusch, Ph.D. (*Linguistics*)  
Pamela L. Munro, Ph.D. (*Linguistics*)  
Earl J. Rand, Ph.D. (*English*)  
Russell G. Schuh, Ph.D. (*Linguistics*)  
John H. Schumann, Ph.D. (*English*)

## Assistant Professors

John W. DuBois, Ph.D. (*Linguistics*)  
Bruce P. Hayes, Ph.D. (*Linguistics*)  
Patricia A. Keating, Ph.D. (*Linguistics*)  
Mary E. McGroarty, Ph.D. (*English*)  
Timothy A. Stowell, 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.

The combined faculties of the Department of Linguistics and the English as a Second Language Section of the Department of English, as well as professors in 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 area of language use, education, acquisition, and analysis. Graduates of the program are well prepared to pursue academic and professional careers at the highest level of service and inquiry.

## Ph.D. Degree

### Admission

The basic requirement for admission is the completion of the UCLA Master of Arts degree in Teaching English as a Second Language 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. Students with graduate degrees 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 (1) three letters of recommendation from professors who are well acquainted with their academic background; (2) a definite and complete statement of the type of dissertation they hope to prepare; (3) copies of any relevant professional publications, M.A. theses, or substantial papers they may have written. The Aptitude Test of the Graduate Record Examination (GRE) should also be taken. Applications for admission to Fall Quarter, which is when most

students are admitted, should reach the Graduate Admissions Office by the preceding December 30; the supporting materials should reach the program office no later than February 15.

Admission criteria include graduate and undergraduate grade-point averages, relevant professional experience, command of foreign language, the quality of the M.A. thesis, and any language-related publications the candidate may have written.

## Major Fields and Specializations

Four areas of specialization are available: language analysis, language education, language acquisition, and language use. For details on each specialization, contact the program office.

## Foreign Language Requirement

Before advancement to candidacy, students whose native language is English must demonstrate proficiency in two foreign languages by one of the following: (1) a reading examination; (2) a research paper based on extensive sources in the language; (3) a conversation examination showing knowledge in depth; (4) an ETS graduate examination. Other alternatives are currently being considered. In consultation with the interdepartmental committee, you must select the most appropriate means of fulfilling the requirement.

## Course Requirements

In addition to fulfilling the general University requirements, candidates for the Ph.D. in Applied Linguistics must meet the program requirements listed below.

**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, you can select either a phonetics and phonology track or a syntax and semantics track. For both tracks, you must take Linguistics 120A and either Linguistics 120B, 127, or English as a Second Language 122K. Students selecting the phonetics and phonology track would then take Linguistics C165A/C200A, followed by Linguistics 201A or 203. Students selecting the syntax and semantics track would take Linguistics C165B/C200B, followed by Linguistics 206A or 206B or 207. For basic preparation in TESL, you must take English as a Second Language 241K, 370K, and 380K. ESL 370K, which is organized as a general orientation to the ESL Section, must be taken at UCLA. If you have taken courses equivalent to any of the remaining courses at another institution, you will not be required to take them at UCLA. If you have at least one year of experience in teaching a second language, you may be exempted from ESL 380K.



**Units and Courses:** As a breadth requirement, all candidates 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, ESL 400K, 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 (eight courses) must include at least two courses in each of the specializations of language analysis and language education, as well as two courses in either language acquisition or language use. (None of the aforementioned six courses may be 596 courses taken in departments other than Linguistics or English.) An additional two courses are required in the specialization in which the dissertation research will be done. Thus, a student who opted for a dissertation in language acquisition would take a minimum of four courses in that area, plus two in language analysis and two in language education.

Appropriate graduate courses taken at UCLA after completion of the M.A. but before admission to the doctoral program may be applied toward the eight-course requirement for the Ph.D. Credit may be transferred for up to two courses taken at another institution, but only for graduate-level courses taken after completion of the M.A. and preferably taken within the framework of UCLA's Applied Linguistics 501.

Within Graduate Division limits, courses that may be taken on an S/U basis include undergraduate courses taken as prerequisites to needed graduate courses, undergraduate courses not required, reading courses in a foreign language, graduate courses taken in addition to the required 32 units, Applied Linguistics 501 and 597 through 599, ESL 400K, and Linguistics 275. All other courses must be taken for letter grades.

## Research Papers

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. The topics of these papers are to be selected by the student, in consultation with appropriate faculty members and with consent of the Ph.D. program adviser. Each of the finished papers is evaluated by two faculty members.

All candidates are required to prepare a dissertation as a demonstration of their ability to carry out original research under the guidance of their doctoral committee. The doctoral committee also administers the University Oral Qualifying Examination before advancement to Ph.D. candidacy.

## Final Oral Examination

As the dissertation nears completion, you must make a public report on the results of your research. This may be done, at your choice, at a meeting of the colloquium of either the Department of Linguistics or the ESL Section. You must, therefore, enroll in either ESL 400K or Linguistics 275 during the appropriate quarter. The public report will determine whether a final oral examination will be required.

## Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Graduate Courses

**501. Cooperative Program (2 to 8 units).** Prerequisite: consent of UCLA Ph.D. program adviser and Graduate Dean, and host campus instructor, department Chair, and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. S/U grading. (F,W,Sp)

**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 the Ph.D. course requirements. May be repeated for credit. (F,W,Sp)

**597. Preparation for Ph.D. Candidacy Examination (4 to 8 units).** Prerequisite: completion of at least six courses of the 32-unit requirement for the Ph.D. May not be applied toward the 32-unit requirement. May be repeated for credit. S/U grading. (F,W,Sp)

**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 quarter they are registered and engaged in dissertation preparation. May be repeated for credit, but may not be applied toward the Ph.D. course requirements. S/U grading. (F,W,Sp)

## Applied Linguistics Course List

### Language Acquisition

**Education** 212A. Learning and Education  
212B. Motivation and Affect in the Educative Process  
212C. Cognition and Creativity in Education  
217D. Language Development and Education  
**English as a Second Language** 260K. Psycholinguistics and Language Teaching  
261K. Second-Language Acquisition  
269K. Current Issues in Language Acquisition  
**Linguistics** 254. Topics in Linguistics I  
**Psychiatry** 257A-257B-257C. Diagnostics and Therapeutics of Language Disabilities  
**Psychology** 240. Developmental Psychology  
260A-260B. Proseminar in Cognitive Psychology  
263. Psycholinguistics

### Language Analysis

**English** M215. Advanced Seminar in the Structure of Present-Day English  
**English as a Second Language** 249K. Current Issues in Language Analysis  
M250K. Advanced Seminar in the Structure of Present-Day English  
251K. Advanced Seminar in Interlanguage Analysis

**Linguistics** 201A, 201B. Phonological Theory

206A, 206B. Syntactic Theory

210A, 210B. Field Methods

220. Linguistic Areas

225. Linguistic Structures

251. Topics in Phonetics and Phonology I

252. Topics in Syntax and Semantics I

253. Topics in Language Variation I

254. Topics in Linguistics I

**Spanish (Spanish and Portuguese)** 256A. Studies in Linguistics

## Language Education

**Education** 204A. Topics and Issues in International and Comparative Education

204D. Minority Education in Cross-Cultural Perspective

210A. Basic Concepts in Educational Research

210B. Experimental Design in Educational Research

210C. Experimental Design: Advanced Topics

210D. Experimental Design: Multivariate Analysis (courses 210A-210D are highly recommended for statistical work, but only two may be applied toward the eight-course requirement)

211A. The Measurement of Educational Achievement and Aptitude

211B. Measurement in Education: Underlying Theory

262B. Seminar: Reading

262F. Seminar: Research Topics in Bilingual/Multicultural Education

264. Seminar: Teacher Education

**English as a Second Language** 220K. Materials Development for Language Teaching

221K. Media for Language Teaching

222K. Language Testing for Teachers of English as a Second Language

223K. Role of English as a Second Language in Bilingual Education

M224K. The Teaching of English for Minority Groups

229K. Current Issues in Language Education

232K. Advanced Seminar in the Construction and Administration of Language Tests

## Language Use

**Anthropology** M232P. Cultural Modes of Thought

M234Q. Psychological Anthropology

240. Seminar in Language and Culture

M241. Topics in Linguistic Anthropology

244. Topics in Language Socialization

**Education** 200B. Survey Research Methods in Education

**English** 242. Language and Literature

M261. Studies in African Literature in English

M262. Studies in Afro-American Literature

275. Stylistics and the Teaching of English

**English as a Second Language** 223K. Role of English as a Second Language in Bilingual Education

280K. Language Policy in Developing Countries

281K. Language Policy in the United States

282K. Intercultural Communication and the Teaching of English as a Second Language

283K. Discourse Analysis

284K. English for Specific Purposes

M285K. Studies in African Literature in English

289K. Current Issues in Language Use

**Linguistics** 251. Topics in Phonetics and Phonology I

252. Topics in Syntax and Semantics I

254. Topics in Linguistics I

**Sociology** 216A-216B. Survey Research Methods  
217A-217B. Ethnographic Fieldwork  
238A-238B. Fieldwork in Minority Communities  
266. Selected Problems in the Analysis of Conversation  
267. Selected Problems in Communication  
**Spanish (Spanish and Portuguese)** 209. Dialectology  
256B. Studies in Dialectology

## Archaeology (Interdepartmental)

288 Kinsey Hall, 825-4169

### Professors

C. Rainer Berger, Ph.D. (*Anthropology, Geography, and Geophysics*), Chair  
Giorgio Buccellati, Ph.D. (*Ancient Near East and History*)  
John Callender, Ph.D. (*Near Eastern Languages and Cultures*)  
Christopher B. Donnan, Ph.D. (*Anthropology*)  
Susan B. Downey, Ph.D. (*Art History*)  
Marija Gimbutas, Ph.D. (*European Archaeology*)  
James N. Hill, Ph.D. (*Anthropology*)  
Clement W. Meighan, Ph.D. (*Anthropology*)  
Henry B. Nicholson, Ph.D. (*Anthropology*)  
Wendell H. Oswalt, Ph.D. (*Anthropology*)  
Merrick Posnansky, Ph.D. (*History and Anthropology*)  
James R. Sackett, Ph.D. (*Anthropology*)  
Stanislav Segert, Ph.D. (*Near Eastern Languages and Cultures*)  
Alexander Badawy, Ph.D., Emeritus (*Art*)  
Paul A. Clement, Ph.D., Emeritus (*Classics and Classical Archaeology*)  
Kan Lao, B.A., Emeritus (*East Asian Languages and Cultures*)  
Katharina Otto-Dorn, Ph.D., Emeritus (*Art History*)  
Richard C. Rudolph, Ph.D., Emeritus (*East Asian Languages and Cultures*)

### Associate Professors

Elizabeth Carter, Ph.D. (*Near Eastern Languages and Cultures*)  
Hung-hsiang Chou, Ph.D. (*East Asian Languages and Cultures*)  
Timothy Earle, Ph.D. (*Anthropology*)  
Bernard D. Frischer, Ph.D. (*Classics*)  
Cecelia F. Klein, Ph.D. (*Art History*)  
William Klement, Jr., Ph.D. (*Engineering and Applied Science and Archaeological Sciences*)  
Steven Lattimore, Ph.D. (*Classics*)  
Dwight Read, Ph.D. (*Anthropology*)  
Arnold Rubin, Ph.D. (*Art History*)

### Assistant Professors

Irene A. Bierman, Ph.D. (*Art History*)  
Michael J. DeNiro, Ph.D. (*Geochemistry and Archaeological Sciences*)  
Gail E. Kennedy, Ph.D. (*Anthropology*)  
Deborah Klimburg-Salter, Ph.D. (*Art History*)  
Martin J. Powers, Ph.D. (*Art History*)

### Adjunct Professor

Leona M. Libby, Ph.D. (*Environmental and Archaeological Sciences*)

## 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. Qualified undergraduates may enroll in courses offered by the program provided they receive consent of the instructor.

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, geology, mathematics, statistics, zoology, etc.). There are opportunities for participation in a variety of field, laboratory, and computer studies on a worldwide scale.

## Requirements for Graduate Degrees

### Admission

Any undergraduate major may be considered for admission to the 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 (Aptitude Test) report is required. 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 or dissertation topic); three letters of recommendation; a research paper preferably relevant to archaeology or comparable evidence of scholarly work. Applicants are accepted for admission to the Fall Quarter only. The program's "Study Guidelines" brochure will be sent to applicants on request to the Chair, Archaeology Program, UCLA, Los Angeles, CA 90024.

### Major Fields or Subdisciplines

Africa; analysis of archaeological materials; ancient Near East; Andean South America; 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.

## Fieldwork

No graduate degree will be awarded until you have worked in the field and have demonstrated your competency to direct field research in archaeology. Both theoretical and practical knowledge of methods and techniques used in the field are necessary.

This requirement may be met in several ways. Ordinarily you will take a regular UCLA field course such as Anthropology 115P (which satisfies the M.A. field course requirement) or Archaeology 259, Ancient Near East 261, or History 276 (which satisfy both the M.A. and Ph.D. field requirements), or similar courses offered by other departments. Comparable courses offered by other institutions may also be accepted. An informal report, submitted by the director of an excavation, describing work performed by the students under supervision, may be sufficient. Excepting the four courses listed above, any given formula to fulfill the requirement will have to be cleared in advance with the Chair of the program.

## Master of Arts Degree

The structure of the M.A. program includes the successful completion within seven academic quarters of fieldwork (described above) plus the following requirements.

### Foreign Language Requirement

The ability to read at least one modern foreign language, relevant to your field of interest and approved by your adviser, is required for the M.A. You may meet this requirement by (1) passing an examination administered by ETS with a score of 500 or better; (2) completing the third course in an introductory, regular sequence of the selected language at UCLA with a minimum grade of A; (3) taking a reading examination (in Spanish, French, or German) administered by the program.

The foreign language requirement must be completed by the end of the sixth quarter in residence, unless an earlier deadline is imposed by the adviser.

### Course Requirements

A minimum of 42 units (at least 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 200 (six units), M201A-M201B (six units each), and two elective graduate courses\*, one of which may be course 596. Course 596 may be taken twice for a maximum of 12 units, but only six units may be applied toward the minimum graduate course requirement (a letter grade is given for the course). Four upper division elective courses\* (a minimum of 16 units, excluding 199s) are also required.

\*Of the six combined elective courses, no more than four may be offered by the same department. At least one must be outside the student's sphere of regional interest to be selected from a pool of eligible courses by the student's adviser.

## Comprehensive Examination Plan

You will be required to take a comprehensive core examination during the third quarter of residence. This written examination is based largely on a reading list of about 30 volumes which have been the focus of the seminar discussions in Archaeology M201A-M201B. The examination will be graded as high pass, pass, or no pass and may be repeated once.

## M.A. Paper

A master's-level research paper, normally no longer than 20 to 35 pages and graded by the three members of the committee, is to be submitted by the end of the third week of the seventh quarter to the Chair of the program.

## Ph.D. Degree

### Admission

Completion of a master's program is required. Applicants who do not have a UCLA M.A. in Archaeology should refer to the admission section under "Requirements for Graduate Degrees" above. Admission to the doctoral program for students completing a UCLA M.A. in Archaeology is based on written recommendation by all three members of the M.A. committee and at least a high pass on either the M.A. core examination or the M.A. paper.

Doctoral students entering the program with an M.A. from another university will be required to pass the comprehensive core examination (see "Master of Arts Degree") unless they can demonstrate to the Chair and the members of the admissions committee that the examination should be waived.

### Foreign Language Requirement

Reading competence in two modern foreign languages relevant to your interests is normally required. Competence may be demonstrated as outlined for the master's degree (except item 2). When proficiency in two foreign languages is not mandated by your interest, you may petition to waive the second language.

### Course Requirements

You must be enrolled in a minimum of 12 units per quarter. Archaeology 200 is required. There are no other restrictions or requirements concerning courses.

### Qualifying Examinations

By the end of the fourth quarter of the doctoral program, after the foreign language requirement has been fulfilled, you must take a written qualifying examination in the following three areas: (1) topical specialization; (2) analytical theory, method, and technique; (3) regional culture history. If you pass this examination, you may then make arrangements to take the oral examination. If the written examination or any portion thereof is failed, you may make one further attempt if your committee deems it appropriate.

The University Oral Qualifying Examination must be taken by the end of the sixth quarter of the doctoral program. You will be required to submit to the doctoral committee a formal dissertation proposal (of about 10 pages), including the particular research problem on which you will be examined during the oral qualifying examination.

### Final Oral Examination

The final oral examination may be waived by your doctoral committee.

## Upper Division Course

**C110. Archaeological Materials Identification and Characterization (6 units).** Lecture, three hours; laboratory, four hours. A laboratory-oriented introduction for archaeologists to the 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 (6 units).** Seminar, two hours. Prerequisite: Archaeology major or consent of instructor. Required of all students. The 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 the departmental M.A. requirements.

**M201A-M201B. Graduate Core Seminar in Archaeology (6 units each).** (Same as Anthropology M219A-M219B.) Seminar, three hours. Required of all M.A. students. Seminar discussions based on a carefully selected list of 30-40 major archaeological works. These compulsory core courses provide the student with a foundation in the breadth of knowledge required by a professional archaeologist. The courses comprise archaeological historiography, a survey of world archaeology, and archaeological techniques. Emphasis is on an appreciation of the multidisciplinary background of modern archaeology and the relevant interpretative strategies. May be repeated for credit by consent of adviser.

**C210. Archaeological Materials Identification and Characterization (6 units).** (Formerly numbered 210.) Lecture, three hours; laboratory, four hours. A laboratory-oriented introduction for archaeologists to the identification and quantitative description of solid materials, especially metals, ceramics, and other inorganic and some organic substances. Concurrently scheduled with course C110.

**M213. Archaeological and Paleontological Applications of Stable Isotopes (6 units).** (Formerly numbered 211.) (Same as Earth and Space Sciences M213.) Lecture, three hours. Application of natural variations in stable isotope ratios in fossilized biological and nonbiological materials to a variety of archaeological and paleontological problems. Topics include the basis for isotope distributions in archaeological and paleontological materials; analytical procedures for measuring isotopic ratios; dietary reconstruction; paleoclimatic analysis; determination of provenience of archaeological materials; analysis of aspects of the biochemistry and physiology of fossil animals.

Mr. DeNiro

**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. A minimum of one month of field time away from the campus is required. May be repeated for credit by consent of adviser.

**596. Individual Studies for Graduate Students (2 to 12 units).** Hours to be arranged. Prerequisite: consent of instructor. May be repeated for credit by 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 by consent of adviser. S/U grading.

**598. M.A. Paper Preparation (2 to 12 units).** Prerequisite: consent of instructor. May be repeated for credit by 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 by 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 115P.** Archaeological Field Training

115Q. Archaeological Research Techniques

115R. Strategy of Archaeology

M115S. Historical Archaeology

116P. Laboratory Analysis in Archaeology

M116Q. Dating Techniques in Environmental Sciences and Archaeology

118A, 118B. Museum Studies

121A. Fossil Man and His Culture

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

183. History of Archaeology

186A-186B. Quantitative Methods and Models in Anthropology

210. Analytical Methods in Archaeological Studies

211. Regional Analysis in Archaeology

M216. Dating Techniques in Environmental Sciences and Archaeology

217. Explanation of Societal Change

218. Historical Reconstruction and Archaeology

221A-221B. The Fossil Evidence for Human Evolution

283. Mathematical Models in Anthropology

Art 203. Museum Studies

265. Fieldwork in Archaeology

**Materials Science and Engineering 149C.** Properties of Art Ceramic Materials

149E. Ceramic Materials in History and Archaeology

## New World

**Anthropology** 113P. Archaeology of North America  
 113Q. The Prehistory of California Indian Cultures  
 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  
 172P. North American Indian Cultures  
 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  
**Art** C117A. Advanced Studies in Pre-Columbian Art: Mexico  
 C117B. Advanced Studies in Pre-Columbian Art: Central America  
 C117C. Advanced Studies in Pre-Columbian Art: The Andes  
 118A. The Arts of Oceania  
 118B. The Arts of Pre-Columbian America  
 118D. The Arts of Native North America  
 220. The Arts of Africa, Oceania, and Pre-Columbian America

## Old World — Africa

**Art** 118C. The Arts of Sub-Saharan Africa  
 C119A. Advanced Studies in African Art: Western Africa  
 C119B. Advanced Studies in African Art: Central Africa  
 220. The Arts of Africa, Oceania, and Pre-Columbian America  
**History**  
 175A. 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 Problems in Old World Archaeology  
**Art** 103A. Greek Art  
 103B. Hellenistic Art  
 103C. Roman Art  
 103D. Etruscan Art  
 103E. Late Roman Art  
 221. Topics in Classical Art  
 223. Classical Art  
**Classics** 151A. Classical Archaeology: The Aegean Bronze Age  
 151B. Classical Archaeology: Greco-Roman Architecture  
 151C. Classical Archaeology: Greco-Roman Sculpture  
 151D. Classical Archaeology: Greco-Roman Painting  
 251A-251D. Seminar in 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: The Bronze Age  
 250A-250B. European Archaeology

## Old World — India and the Far East

**Art** 114A. The Early Art of India  
 114B. Chinese Art  
 114C. Japanese Art  
 C115A. Advanced Indian Art  
 C115B. Advanced Chinese Art  
 C115C. Advanced Japanese Art  
 C259. Advanced Japanese Art  
 260. Asian Art  
**East Asian Languages and Cultures** 170A-170B. Archaeology in Early and Modern China  
 270. Seminar: Selected Topics in Chinese Archaeology  
 275. Seminar: Selected Topics in Chinese Cultural History

## Old World — Islam

**Art** 104A. Western Islamic Art  
 104B. Eastern Islamic Art  
 C104C. Problems in Islamic Art  
 213. Problems 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 of Palestine  
 163A-163B. Archaeology of Iran  
 164A-164B-164C. The Archaeology of the Historic Periods in Mesopotamia  
 220. Seminar in Ancient Egypt  
 M250. Seminar in Ancient Mesopotamia  
 250X. Seminar in Ancient Mesopotamia  
 260. Seminar in Ancient Near Eastern Archaeology  
 262. Seminar in Object Archaeology  
**Anthropology** 110. World Archaeology  
**Art** 101A, 101B, 101C. Egyptian Art and Archaeology  
 102. Art of the Ancient Near East  
 210. Egyptian Art  
**History** 105. History of Ancient Mesopotamia and Syria  
 193D. Religions of the Ancient Near East  
 200A-200U. Advanced Historiography  
 201A-201U. Topics in History

# Asian American Studies (Interdepartmental)

3232 Campbell Hall, 825-2974

## Professors

Lucie Cheng, Ph.D. (*Sociology*)  
 Patrick K. Ford, Ph.D. (*English*)  
 Dolores Hayden, M.Arch. (*Architecture and Urban Planning*)  
 Philip C. Huang, Ph.D. (*History*)  
 Stanley Sue, Ph.D. (*Psychology*), Chair

## Associate Professors

Robert A. Nakamura, M.F.A. (*Theater Arts*)  
 Philip L. Newman, Ph.D. (*Anthropology*)  
 Leo M. Snowiss, Ph.D. (*Political Science*)

## Assistant Professors

Don T. Nakanishi, Ph.D. (*Education*)  
 Jeffrey Prager, Ph.D. (*Sociology*)

## 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 United States from several disciplines. The undergraduate program provides a general introduction to Asian American studies for those who anticipate advanced work at the graduate level or careers in research and community work related to the Asian American. Although no undergraduate major is offered in Asian American studies, students may participate in the program through a departmental major or the interdepartmental major in East Asian studies. The graduate program leads to an M.A. degree.

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, mental health, social values, and politics.

## Special Undergraduate Program

### Preparation for the Program

*Required:* Asian American Studies 100A-100B.

### Upper Division

Since this is not a degree-granting program, students participating in it must complete an organized major.

For further information on the undergraduate program, contact the Curriculum Coordinator, Asian American Studies Center, at the above address.

## Master of Arts Degree

### Admission

In addition to the University's minimum requirements, applicants 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 their application. Three letters of recommendation are also required.

### Major Fields

Since the program is interdepartmental, its major fields are determined by the participating faculty from various departments.

### Research Tool Requirement

The research tool requirement may be satisfied by one of two options:

(1) Asian Language: Have a minimum of two full years of study in an Asian language at the university level or equivalent. This requirement may be fulfilled before entering the program, but you must pass a proficiency examination administered by the Asian American Studies Center and the faculty guidance committee.

(2) Research Methods: Take three upper division or graduate courses in research methods (e.g., statistics, computer science, field and observational techniques, experimental techniques, archival methods). Specific courses must be approved by the faculty guidance committee.

You must justify your choice of option in a written statement. The rationale must specify the courses selected and how they directly relate to research and career goals.

### Course Requirements

A total of 11 upper division and graduate courses is required for the degree. Of that number, seven must be graduate courses, including the required Asian American Studies 200A-200B, 200C. Three of the graduate courses must be selected from Anthropology 231, Education 253G, History 201H, Sociology 261.

Two courses in the 500 series may be applied toward the required 11 courses; however, only one of the two may be applied toward the required seven graduate courses.

### Thesis Plan

The thesis committee is synonymous with the guidance committee. It is normally constituted at the beginning of the second year of residence, at which time you are expected to submit a plan for approval. After the approval of the thesis, the committee will conduct an oral examination on its subject.

## Upper Division Courses

**100A-100B. Introduction to Asian American Studies.** This survey sequence is an introduction to Asian American studies. **100A** deals with the history of Asians in America. **100B** examines contemporary Asian American communities.

**103. Asian Americans and the Law.** The course surveys 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 Japanese relocation orders, anti-Asiatic labor legislation, legal prohibitions against Asians' right to testify, case law on Asian women, and equal educational opportunity for Asians.

**105. Asian American Women.** Lecture, three hours. The course presents the condition of Asian women in America. Topics include racial and cultural stereotypes, women in Asian American history, and contemporary issues and concerns of Asian American women. Current approaches to Asian American women are presented and evaluated. Ms. Cheng

**197. Topics in Asian American Studies.**

## Graduate Courses

**200A-200B. Critical Issues in Asian American Studies.** Prerequisites: graduate standing, consent of instructor. An interdisciplinary seminar which attempts to (1) review systematically and critically the literature on Asian Americans, (2) identify gaps of knowledge and controversial issues in the field, and (3) develop plans of research and investigation that focus on these issues. Ms. Cheng, Mr. Nakanishi

**200C. Critical Issues in Asian American Communities.** Lecture, three hours. Prerequisites: graduate standing, consent of instructor. Traditional and contemporary theories and models of community are evaluated for their appropriateness to understanding Asian Pacific American communities. Specific topics which explicate the development, structure, and dynamics of Asian Pacific American communities are considered in studying community issues and concerns. Ms. Cheng, Mr. Sue

**297. Topics in Asian American Studies.**

**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** M163. Women in Culture and Society  
M164. The Afro-American Experience in the United States

166. Comparative Minority Relations  
167. Urban Anthropology

M172T. Ethnohistory of Hispanic Cultures in the U.S. Southwest

175P. Civilizations and Cultures of Southeast Asia

175Q. Civilizations of South Asia

175S. Japan

177. Cultures of the Pacific

231. Asian Americans: Personality and Identity

261. Comparative Minority Relations

274. Cultures of the Pacific Islands

**Architecture and Urban Planning** 218A-218B. Urban Structure: Analysis and Modeling

251. Planning for Multiple Publics

255. Urban Morphology: Definitions and Consequences

**History** 153. The United States and the Philippines

154A-154B. United States Urban History

155A-155B. American and European Working Class Movements

M159A, M159B. History of the Chicano Peoples

160. The Immigrant in America

161. Asians in American History

163. History of California

183. Modern China, 1840-1920

187C. Modern Japanese History

200H. Advanced Historiography: United States

201H. Topics in History: United States

245. Colloquium in U.S. History

252A-252B. Seminar in Recent United States History to 1930

254A-254B. Seminar in United States Social and/or Intellectual History

256A-256B. Seminar in American Diplomatic History

257A-257B. Seminar in United States Urban History

258A-258B. Seminar in Working Class History

259A-259B. Seminar in Social History of Women in the U.S.

260A-260B. Seminar in Native American History

261A-261B. Seminar in Afro-American History

262A-262B. Seminar in Chicano History

263A-263B. Seminar in the History of the American West

M264. History of American Education

282A-282B-282C. Seminar in Chinese History

285A-285B. Seminar in Modern Japanese History

**Political Science** 135. International Relations of China

136. International Relations of Japan

M147. Minority Group Politics

159. Chinese Government and Politics

160. Japanese Government and Politics

C250C. Chinese and East Asian Studies

C250D. Japanese and Western Pacific Studies

**Psychology** 175. Community Psychology

176. Experimental Community Psychology

225. Seminar: Critical Problems in Social Psychology

M228. Seminar in Political Psychology

229A. Issues in the Social Development of the Minority Child

**Sociology** 124. Ethnic and Status Groups

125. Urban Sociology

134. Comparative Social Institutions of East Asia

155. Intergroup Conflict and Prejudice

234. Sociology of Community Organization

238A-238B. Fieldwork in Minority Communities

259. Social Structure and Economic Change: Historical and Comparative Perspectives

260. Industry and Society

261. Ethnic Minorities

M262. Selected Problems in Urban Sociology

276. Selected Topics in the Sociology of East Asia

291. Moral Solidarity in Communities

# Astronomy

8979 Math Sciences, 825-4434

## Professors

Lawrence H. Aller, Ph.D.  
 Ferdinand Coroniti, Ph.D., *Chair*  
 Harland W. Epps, Ph.D.  
 Michael A. Jura, Ph.D.  
 Mirek Plavec, Ph.D.  
 Roger K. Ulrich, Ph.D.  
 Edward L. Wright, Ph.D.  
 Benjamin Zuckerman, Ph.D.  
 Daniel M. Popper, Ph.D., *Emeritus*

## Associate Professors

Mark Morris, Ph.D.  
 William I. Newman, Ph.D.

## Scope and Objectives

Astronomy, the oldest science, has now become a meeting place of nearly all physical sciences. It is difficult for any educated person to escape the awe and wonder of such things as the nature of the other planets, the likelihood of black holes in space, the origin and future of the universe, and the possibility of life elsewhere.

The Astronomy Department, therefore, has several educational missions: to develop skills in graduate students which will enable them to make contributions at the frontier of astronomical research, to prepare undergraduate majors for entry into a graduate program, and to provide insight and understanding for nonmajors and nonscience students.

Graduate training of future astronomers, up to the Ph.D. level, is the department's first responsibility. Applicants must have solid backgrounds in physics and mathematics. The program provides training in both theoretical and observational astronomy; its strengths, at present, are in solar physics, stellar structure and evolution, magnetohydrodynamics, gaseous nebulae and interstellar medium, optical design, galaxies, quasars, and observational and theoretical cosmology.

The department's second responsibility is to the undergraduate astronomy major who hopes for a career in astronomy. Some Bachelor of Science degree recipients go on to graduate work; some opt for teaching careers, for which their training in physics, astronomy, and mathematics is most useful; still others find excellent jobs in industry, where their broad background in physical science with a specialty in astronomy makes them particularly valuable (especially in computer science, space, and aeronautical fields).

## Classes for Nonmajors

The department offers general courses to all University students, including those who are not science oriented. Astronomy 3, 4, 5, and 6

are nonmathematical courses open to the general University student normally not intending to major in the physical sciences.

Astronomy 3 is the fundamental course recommended for every University student who does 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 course 3H or 4, 5, or 6.

Astronomy 4, 5, and 6 are nonmathematical courses which develop the topics covered in course 3 to somewhat greater depths. Course 5 concentrates on the problem of life in the universe; course 6 discusses the structure and evolution of the universe and the historical development of our ideas about it. In course 4, the topics vary. These three courses may be taken in any order by students with a grade of C or better in course 3, or whose astronomical knowledge is on a similar level.

Students who have had at least two courses in high school algebra and one course in trigonometry are advised to take, instead of Astronomy 3, the parallel honors course, Astronomy 3H. Declared or potential majors in astronomy 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 represent a serious and systematic introduction to astrophysics and require a good background in physics and mathematics (at least two quarters of the Physics 8 series and two quarters 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.

## Bachelor of Science Degree

### Preparation for the Major

*Required:* Astronomy 81, 82, Physics 8A/8AL, 8B/8BL, 8C/8CL, 8D/8DL, 8E, Mathematics 31A, 31AL, 31B, 31BL, 32A, 32B, 33A, 33B. *Recommended:* Chemistry 11A. Systematic study of astronomy 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:* Earth and Space Sciences 101, Physics 108, 112, 115C, 123, 124, 132.

### Honors Program

Senior majors in astronomy with a 3.4 grade-point average in all astronomy, mathematics, and physics courses are eligible for the honors program in astronomy. In addition to complet-

ing all courses required for the major, the honors student must complete two quarters of Astronomy 199. To receive honors and highest honors at graduation, the grade-point average must remain at 3.4 or higher, and the work in course 199 must reflect original research and be accepted by the departmental honors committee.

## Graduate Study

### Admission

The basic requirement for admission is a bachelor's degree in physics or astronomy. Students in closely related fields (e.g., mathematics or chemistry) may be admitted at the discretion of the department. All students who apply should submit at least three letters of recommendation and take the Graduate Record Examination Aptitude Test and Advanced Test in Physics. For further information, contact the Graduate Adviser, Department of Astronomy, UCLA, Los Angeles, CA 90024.

New students and those who have not been admitted to candidacy for the Ph.D. should consult with the graduate adviser at the beginning of Fall Quarter to determine a program for the year.

## Master of Science Degree

### Course Requirements

Nine courses are required for the master's degree, of which at least five must be at the graduate level in astronomy. 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. Courses taken in the 300 or 500 series may not be applied toward the total course requirement or the graduate course requirement.

### Comprehensive Examination Plan

To receive the master's degree, you must obtain at least a B average in the departmental written comprehensive examinations. The examinations are divided into sections, with one section for each course in the A or B series that you may apply toward the M.S., M.A.T., or Ph.D. requirements. The examination is scheduled at the time the final examination for the course would normally be scheduled and is letter-graded. You may repeat failed courses for credit but may not repeat the departmental examinations for departmental credit.

## Master of Arts in Teaching (M.A.T.)

### 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 and at least three upper division or graduate courses in astronomy, mathematics, physics, or 100- or 200-series courses in education

required for the teaching 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

This plan is the same as for the M.S. degree.

## Ph.D. Degree

### Course Requirements

Required for the degree are Astronomy 200, 204A, 208A, 217A, 219A, 227A, 230A; at least four courses from 204B, 208B, 217B, 219B, 227B, 230B; and at least two courses (projects) from 204C, 208C, 217C, 219C, 227C, 230C. You are required to take course 250 each quarter in residence.

### Teaching Experience

Before receiving a Ph.D., you are required to spend at least three quarters as a teaching assistant at UCLA or have equivalent experience elsewhere.

### Comprehensive Examinations

The departmental written comprehensive examinations are the same as described under the M.S. degree. To be qualified to go on to the Ph.D., you must receive a minimum score on these examinations.

After the written comprehensive examinations are completed, you must then fulfill the normal University requirements for a dissertation and pass the University Oral Qualifying Examination.

### Projects

During the Fall Quarters of the second and third years, you are expected to complete a research project. You should work closely with one of the staff both when the project subject is selected and throughout the course of the work. The projects may be a continuation of work begun during the preceding Spring Quarter; the goals of the project should be selected to reflect the amount of work completed in the Spring Quarter.

The evaluation of the projects will be based as much on the quality of the written report as on the quality of the research itself. The project report should include statements of the project goals, the relationship of the project to broader issues in astronomy, the techniques chosen to attack the project problem, and the reasons for

this choice. If the project is original and interesting, but incomplete, you would be encouraged to complete it later, but the grade assigned will be based on the portion completed by the end of the Fall Quarter.

### Final Oral Examination

You must pass a final examination upon completion of your dissertation.

## Lower Division Courses

**3. Astronomy: The Nature of the Universe.** Lecture, three hours; discussion, one hour. Not open to students with credit for or currently enrolled in course 3H or former course 101. No special mathematical preparation is required beyond that necessary for admission to the University with freshman standing. A course for the general University student, normally not intending to major in physical sciences, on the 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. Course requires the ability to understand mathematical and physical concepts, but high school algebra and trigonometry classes provide sufficient qualification. Particularly recommended to declared or potential majors in astronomy or in physical and mathematical sciences.

**4. Topics in Modern Astronomy.** Lecture, three hours; discussion, one hour. Prerequisite: course 3 or 3H or equivalent. For the general University student with previous introduction to astronomy. Selected topics (such as evolution of the solar system and stars, nature of quasars, black holes) are treated in some depth, but without formal mathematics, emphasizing the significance and relationship to other sciences.

**5. Life in the Universe.** Lecture, three hours; discussion, one hour. Prerequisite: prior introduction to astronomy or consent of instructor. Topics include How did we get here? Chances that "they" made it too? Can we communicate? Selected topics are treated in some depth, but with little or no formal mathematics. The course includes some biology, geology, chemistry, and physics, as well as astronomy.

Mr. Zuckerman

**6. Cosmology: Our Changing Concepts of the Universe.** Lecture, three hours; discussion, one hour. Prerequisites: course 3, 3H, or equivalent. An essentially nonmathematical exposition of our ideas about the structure and evolution of the universe. Historical development of the ideas up to the present time. Problem of cosmic center and cosmic edge. Space and time. Curvature of space. General relativity. Black holes. The expanding universe and cosmological redshift. Early stages of the universe, Big Bang, current ideas of the inflationary universe.

**10. Practice in Observing (2 units).** Laboratory, two and one-half hours one evening per week. Prerequisites: knowledge of plane trigonometry and prior or concurrent course in astronomy, or consent of instructor. Practical work for beginners, including telescopic observations and laboratory exercises cognate to an introductory course in astronomy. (F)

**81. Astrophysics I: Stars and Nebulae.** (Formerly numbered 101.) Lecture, three hours; laboratory, one hour. Prerequisites: Mathematics 31A, 31B, Physics 8A, or equivalent, or consent of instructor. Open to qualified sophomore and upper division students. A 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.

Mr. Plavec (W)

**82. Astrophysics II: Stellar Evolution, Galaxies, and Cosmology.** (Formerly numbered 101.) Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 31A, 31B, Physics 8A, or equivalent. 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. The 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 the earliest moments of the universe.

Mr. Coroniti (Sp)

## 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, the Saha equation, degeneracy. Applications to stellar atmospheres, stellar interiors, and the interstellar medium.

Mr. Epps, Mr. Jura (W)

**117. Radiation and Fluids in Astrophysics.** Lecture, three hours. Prerequisites: course 115 or equivalent, junior standing in astronomy 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 the interstellar and intergalactic media, and to the early universe.

Mr. Jura, Mr. Morris (Sp)

**127. Stellar Atmospheres, Interiors, and Evolution.** Lecture, three hours. Prerequisite: senior standing in astronomy 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 the normally observed stages to white dwarfs, neutron stars, and black holes. Novae, supernovae, other variable stars, chromospheres and coronae of the sun and stars. Evolution of binary stars. Analysis of stellar atmospheres.

Mr. Plavec, Mr. Ulrich (Sp)

**140. Stellar Systems and Cosmology.** Lecture, three hours. Prerequisite: senior standing in astronomy or physics or consent of instructor. Properties of star clusters and galaxies, with particular emphasis on the Milky Way galaxy. Clusters and superclusters of galaxies. Extragalactic distance scale. Quasars and active galaxies. Topics in cosmology, including the expansion of the universe, microwave background, galaxy formation from primordial fluctuations, and observational constraints on the Big Bang.

Mr. Morris, Mr. Wright (W)

**180. Astrophysics Laboratory.** Lecture, two hours; laboratory, four hours. Prerequisites: junior or senior standing in astronomy, physics, or a related field and 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. Use of computers for the automatic collection of data and for processing 2-D astronomical images is emphasized.

Mr. Wright (F)

**199. Special Studies (2 or 4 units).** Prerequisites: senior standing in astronomy or physics (with an outstanding record) and consent of instructor. Special studies with an individual faculty member. With prior consent, the course may be used to carry out a meritorious observing program at the UCLA students' observatory, or in special cases, with the 24-inch reflector.



## Graduate Courses

Prerequisite to all graduate courses is consent of instructor. Courses 204A through 230C are offered in alternate years and consist of three quarters according to the following scheme: level A (Winter Quarter, four units) — a basic survey course presenting the minimum knowledge in the field expected of all students who wish to obtain the Ph.D., but who do not necessarily plan to specialize in the field covered by the course; level B (Spring Quarter, six units) — advanced level for those considering the possibility of taking up a research project in the field; level C (Fall Quarter, following academic year, ten units) — individual research projects supervised by the instructor in the form of a laboratory. Course 240 is equivalent to the B courses.

**200. Introduction to Graduate Study of Astronomy.** Required of all new graduate students. Surveys the various fields of astronomy and astrophysics; gives first acquaintance with working methods and with the department. Basic astronomical nomenclature is surveyed, and the background in physics and mathematics is outlined as required in graduate courses.

**201. Astrophysics of the Solar System.** Prerequisite: graduate standing or consent of instructor. The sun, solar phenomena, and solar-terrestrial relationships. The interplanetary medium and astronomical plasma physics, comets, meteorites, meteors, satellites and planets, planetary atmospheres. Origin and evolution of the solar system. Mr. Ulrich

**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. Mr. Epps, Mr. Ulrich

**208A-208B-208C. The Interstellar Medium (4 units, 6 units, 10 units).** Dynamics and physics of interstellar gas and dust. Radio observations of the interstellar medium. Diffuse and planetary nebulae. Magnetic fields in space. Star formation. Topics in high energy astrophysics. Mr. Jura, Mr. Zuckerman

**217A-217B-217C. Stellar Photospheres (4 units, 6 units, 10 units).** Physics of stellar photospheres and radiative transfer. The continuous and line spectra of stars. Chemical abundances in stars. Stars with extended and unstable atmospheres. Mr. Plavec, Mr. Ulrich

**219A-219B-219C. Stellar Systems (4 units, 6 units, 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. Mr. Wright

**227A-227B-227C. Stellar Structure and Evolution (4 units, 6 units, 10 units).** Structure and evolution of the stars. Stellar energy sources and problems of nucleosynthesis. Theory of variable stars. Evolution of and mass exchange in binary stars. Final state of stellar evolution and degenerate stars. Supernova processes. Practical computation of stellar structure and evolution. Mr. Plavec, Mr. Zuckerman

**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. Mr. Coroniti, Mr. Wright

**240. Modern Problems in Astronomy and Astrophysics.** Special topics offered by distinguished visiting professors. Open to qualified graduate students in astronomy and in related fields (physics, atmospheric sciences, earth and space sciences). May be repeated for credit.

**250. Seminar on Current Astronomical Research (2 units).** Required of all graduate students. Current astronomical problems. (F,W,Sp)

**M285. Origin and Evolution of the Solar System.** (Same as Earth and Space Sciences M285.) Dynamical problems of the solar system; chemical evidences from geochemistry, meteorites, and the solar atmosphere; nucleosynthesis; solar origin, evolution, and termination; solar nebula, hydromagnetic processes, formation of the planets and satellite systems. Content varies from year to year. May be repeated for credit. S/U grading. Mr. Kaula

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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. Mr. Kraft

**599. Ph.D. Research and Writing (10 to 12 units).**

## Atmospheric Sciences

7127 Math Sciences, 825-1217

### Professors

Akio Arakawa, D.Sc. (*Atmospheric Dynamics*)  
George L. Siscoe, Ph.D. (*Atmospheric Physics*),  
Chair

Richard M. Thorne, Ph.D. (*Atmospheric Physics*)  
Sekharipuram V. Venkateswaran, Ph.D.

(*Atmospheric Physics*)  
Morton G. Wurtele, Ph.D. (*Atmospheric Dynamics*)  
Michio Yanai, D.Sc. (*Atmospheric Dynamics*)  
James G. Edinger, Ph.D., *Emeritus*  
Yale Mintz, Ph.D., *Emeritus*  
Morris Neiburger, Ph.D., *Emeritus*

### Assistant Professors

Carlos R. Mechoso, Ph.D. (*Atmospheric Dynamics*)  
Derek C. Montague, Ph.D. (*Atmospheric Chemistry*)  
Roger M. Wakimoto, Ph.D. (*Atmospheric Dynamics*)

## Scope and Objectives

The atmospheric sciences present a wide variety of problems of compelling scientific interest and increasing social concern. This is exemplified by the efforts to improve air quality, the depredations caused by severe storms and floods, the attempts to control or modify weather phenomena, the problems of long-range

weather forecasts and climate change, the expanding scientific frontiers into our outer atmosphere and the atmospheres of other planets.

The department offers a broad curriculum in dynamic and synoptic meteorology, upper atmospheric and space physics, cloud microphysics, atmospheric chemistry, and radiative transfer in planetary atmospheres.

The Bachelor of Science degree may qualify students for entry-level technical positions or represent 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 10H, 11, Physics 8A/8AL, 8B/8BL, 8C/8CL, 8D/8DL, 8E, Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Chemistry 11A, Program in Computing 3.

### The Major

*Required:* Atmospheric Sciences M140, 141, 142, 160, 161; Physics 110A, 110B, 131; two courses from Atmospheric Sciences 143, 144, 151, and two courses from 152, 153, M154, 156. In addition, students preparing for graduate studies in atmospheric chemistry should take Chemistry 11B, 110B, and 110A or Physics 112; students preparing for graduate studies in cloud physics and precipitation should take Physics 112, 140, Mathematics 135A-135B, 140A; students preparing for graduate studies in upper atmospheric and space physics should take Physics M122.

## Graduate Study

The Department of Atmospheric Sciences offers the M.S., C.Phil., and Ph.D. degrees.

### Admission

There are no admission requirements in addition to University minimum requirements and no application form in addition to the one used by the Graduate Admissions Office. Three letters of recommendation are required. For departmental brochures and information, write to Department of Atmospheric Sciences, UCLA, Los Angeles, CA 90024. In addition to students holding bachelor's degrees in meteorology or atmospheric sciences, graduates with degrees in related disciplines—astronomy, chemistry, engineering, geophysics, mathematics, and physics—are encouraged to apply for graduate standing 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 the candidate's previous education.

## Major Fields or Subdisciplines

Dynamic and synoptic meteorology; cloud physics and precipitation; radiation; upper atmospheric and space physics.

## Master of Science Degree

### Course Requirements

A total of nine courses must be completed, five of which must be in the 200 or 500 series. You must also attain a grade of B (3.0) or better in one 150-series or graduate course in each of two fields other than your field of specialization. The only formal course requirement beyond the UCLA general requirements is Atmospheric Sciences 260 in which you must present a formal seminar attended and graded by all faculty.

Only one 500-series course (four units) may be applied toward the minimum graduate course requirement for the M.S. degree.

### Comprehensive Examination Plan

The comprehensive examination is based on coursework given during a prior two-year period. The examination is usually conducted at the end of the Fall and Spring Quarters, but special arrangements can be made for the Winter Quarter. A grade-point average of 3.0 is required for a pass at the M.S. level; a GPA of 3.5 or better allows you to continue toward entry into the Ph.D. program. You are permitted two attempts to obtain the requisite grade either for termination at the M.S. level or for continuation toward a Ph.D. You must, however, attempt the examination by the end of your first two years of study and if necessary, retake the examination at the earliest available time.

### Thesis Plan

If you have a grade-point average of 3.5 or better, you 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 you complete the degree (at the end of the first year of study). Provided you maintain a high academic standard in coursework, the accepted thesis may be used instead of the comprehensive examination for continuance toward the Ph.D. program.

## Ph.D. Degree

### Course Requirements

Students entering the department with an M.S. degree have no specific course requirements. The graduate advisers may, at their discretion, prescribe courses in areas in which they deem students to have insufficient background to help them in preparing to pass the comprehensive examination.

## Teaching Experience

There is no formal requirement for teaching experience, but it is strongly encouraged, and approximately 95 percent of our graduate students serve as teaching assistants for one or more quarters.

## Qualifying Examinations

After passing the comprehensive examination at the requisite level or completing the M.S. thesis in this department, you must take a further in-depth written or oral examination in your area of research specialization conducted by your departmental guidance committee. Subsequently, a full doctoral committee is appointed to conduct the University Oral Qualifying Examination on your chosen 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.

## Final Oral Examination

This examination is required of all students.

## Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Lower Division Courses

**1. Introduction to Weather Maps and Weather Forecasting.** Lecture, three hours; discussion, one hour. A course specifically designed to satisfy in part the Letters and Science breadth requirement of students majoring outside the physical sciences. An introduction to weather maps and satellite imagery and their use in making a weather forecast. Discussions also include the structure of the National Weather Service and the services it provides to the general public. The course allows students to make weather forecasts for Los Angeles and one city east of the Rocky Mountains. Mr. Wakimoto

**2. Air Pollution.** Lecture, three hours; discussion, one hour. A Letters and Science breadth requirement course for all students interested in the causes and effects of high concentrations of pollution in the atmosphere. Topics include the 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 the biosphere and the oceans; stratospheric pollution. Mr. Montague (F)

**3. Introduction to the Atmospheric Environment.** Lecture, three hours; discussion, one hour. A course specifically designed to satisfy in part the Letters and Science breadth requirement of students majoring outside the physical sciences. The nature and causes of weather phenomena, including winds, clouds, rain, lightning, tornadoes and hurricanes, solar and terrestrial radiation; phenomena of the higher atmosphere: the ionosphere and the auroras; causes of air pollution; proposed methods and status of weather modification. Mr. Thorne, Mr. Wurtele

**4. Severe Weather and Its Social Impact.** Lecture, three hours; discussion, one hour. A course specifically designed to satisfy in part the Letters and Science breadth requirement of students majoring outside the physical sciences. Discussions concerning meteorological phenomena which cause natural disasters and their social impact. Topics include thunderstorms, tornadoes, lightning, hail, downbursts, hurricanes, flash floods, droughts, blizzards, and freezing rain. Discussions also include the forecasting, prediction, and warning of these events. Mr. Wakimoto

**5. Climates of Other Worlds.** Lecture, three hours; discussion, one hour. A course specifically designed to satisfy in part the Letters and Science breadth requirement of students majoring outside the physical sciences. Introduction to the atmospheres of planets and their satellites in the solar system using information obtained during the recent planetary exploration program. An elementary description of the origin and evolution of atmospheres on the planets. Climates on the planets, the conditions necessary for the evolution of life, and its resulting effect on the planetary environment. Mr. Thorne

**6. Climate and Climatic Change.** Lecture, three hours; discussion, one hour. A course specifically designed to satisfy in part the Letters and Science breadth requirement of students majoring outside the physical sciences. Introduction to the physical causes of climate, the classification of climate, and the global distribution of climate types. Description of climate changes over time scales ranging from the lifetime of earth to el niño events. Discussion of the causes of climatic change (e.g., the long-term steady increase in solar luminosity, short-term fluctuations in solar luminosity, changes in the earth's orbit, changes in atmospheric composition, volcanoes, anthropogenic changes such as increased CO<sub>2</sub> and nuclear war). State of the art in modeling and predicting climate. Mr. Venkateswaran

**7. Meteorology in History and Art.** Lecture, three hours; discussion, one hour. A course specifically designed to satisfy in part the Letters and Science breadth requirement of students majoring outside the physical sciences. The history of a science — meteorology — from biblical and Greek times to the present. The answers to the main questions of meteorology are given for each age. Discussions on meteorology in art and literature, tracing its transformations as they reflect changes in meteorological understanding. Mr. Siscoe (Sp)

**10H. Introduction to Atmospheric Sciences.** (Formerly numbered 3H.) Lecture, three hours; discussion, one hour. Prerequisite: Physics 8D or exceptional performance in high school mathematics and physics or consent of instructor. An introductory course in atmospheric phenomena and atmospheric processes, required of atmospheric sciences majors and recommended for honors students who are declared or potential majors in the physical sciences or engineering. Mr. Thorne

**11. Introduction to Synoptic Meteorology.** Lecture, three hours; laboratory, three hours. Prerequisites: course 10H and Mathematics 33A. The mean structure of the atmosphere. General characteristics and source regions of air masses. Polar-front theory. Weather in relation to disturbances. Upper-level wind structure and its relationship to cyclone development. Laboratories include an introduction to scalar analysis, hourly airways observations, synoptic and rawinsonde code. Students make weather forecasts for different areas of the United States. Mr. Wakimoto

## Upper Division Courses

**101. Meteorology and Society.** Lecture, three hours; discussion, one hour. Prerequisite: upper division or graduate standing. Intended for students in architecture, urban planning, law, and engineering, and all students interested in the impact of weather on society. The impacts on and uses of meteorology in society. Climate and architectural planning. Weather and engineering structures. Forensic meteorology in civil cases. The uses and abuses of short- and long-term weather forecasts and their current validity. The status of attempts to modify climate — in particular, to increase rainfall. Meteorology and public policy — in particular, air pollution legislation and acid rain investigations. Mr. Wurtele

**M140. Introduction to Fluid Dynamics.** (Formerly numbered M149.) (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. Surface and internal gravity waves. Rotating frame. Viscous flow. Mr. Arakawa, Mr. Schubert (F)

**141. Atmospheric Motion I.** (Formerly numbered 150.) Lecture, three hours; discussion, one hour. Prerequisite: course M140. Structure and dynamics of extratropical synoptic-scale disturbances in the atmosphere. The quasi-static equilibrium. Internal gravity waves and the Rossby wave. Quasi-geostrophic motions. Extratropical cyclones. Fronts and frontogenesis. Mr. Yanai

**142. Atmospheric Motion II.** (Formerly numbered 151.) Lecture, three hours; discussion, one hour. Prerequisite: course 141. Atmospheric turbulence and convection. The planetary boundary layer. Thermodynamics of moist air. Stratus clouds. Elementary cumulus dynamics. Structure and dynamics of tropical disturbances. Mesoscale weather systems. Mr. Yanai

**143. Physical Oceanography.** Lecture, three hours; discussion, one hour. Prerequisite: course 141. Physical structure of the oceans; observational techniques. Theory of waves, currents, swell, and tides. Mr. Mechoso

**144. Micrometeorology and Air Pollution Meteorology.** Lecture, three hours; discussion, one hour. Prerequisite: course 142. Wind and temperature structure in the surface layer; mesoscale weather and wind systems; turbulence and diffusion; evaporation; transport, diffusion, and transformation of atmospheric contaminants. Mr. Wurtele (Sp)

**151. General Circulation of the Atmosphere.** Lecture, three hours; discussion, one hour. Prerequisite: course 142. Observed mean circulations of the atmosphere. The momentum, heat, and moisture budgets and the energy cycle. Laboratory experiments. Basic dynamics of the Hadley and Rossby resumes. Vertical propagation of planetary waves. Stratospheric sudden warming. The quasi-biennial oscillation. Mr. Arakawa

**152. Introduction to Physics of Clouds and Precipitation.** Lecture, three hours; discussion, one hour. Prerequisite: course 142 or consent of instructor. Macroscopic and microscopic description of clouds and precipitation; phase change processes in the atmosphere; theory of drop forming and ice forming nuclei; development of precipitation in clouds; cloud chemistry, cloud electricity. Mr. Montague

**153. Atmospheric Radiation.** Lecture, three hours. Prerequisite: Physics 110B or consent of instructor. Thermal radiation from the sun and planets. Transfer of thermal radiation through planetary atmospheres. Radiation budget. Scattering of electromagnetic radiation by atoms, molecules, dust, and aerosols. Remote sensing. Meteorological optics.

**M154. Solar Terrestrial Physics.** (Same as Earth and Space Sciences M154.) Lecture, three hours; discussion, one hour. Prerequisite or corequisite: Physics 110B. Particle and electromagnetic emissions from the sun under quiet and under disturbed conditions. The solar wind. The magnetospheres and the ionospheres of the earth and other planets. Geomagnetic phenomena. Aurora and airglow. Mr. Thorne (F)

**156. Introduction to Atmospheric Chemistry.** Lecture, three hours; discussion, one hour. Prerequisites: course 142, Chemistry 11B, or consent of instructor. Chemical composition and history of the atmosphere; natural cycles of important minor constituents; relevance and application of elementary chemical kinetics, thermochemistry, spectroscopy, and photochemistry to chemical processes in the lower and upper atmosphere; chemical aspects of air pollution and aerosol formation. Mr. Montague

**160. Synoptic Meteorology Laboratory.** Lecture, two hours; laboratory, six hours. Prerequisite: course 11. Corequisite: course 141. Study of extratropical cyclone structure and fronts through analysis of surface and upper-level weather charts. Interpretation of satellite imagery and remote soundings. Isentropic analyses. Discussion of the principal jet streams and tropopause. Severe weather forecast. Mr. Wakimoto (Sp)

**161. Numerical Methods in Atmospheric Sciences.** Lecture, two hours; laboratory, three hours. Prerequisites: course 141 and Program in Computing 3, or consent of instructor. Numerical solutions of problems selected from atmospheric sciences. Matrix inversion. Solution of the oscillation, decay, advection, and vorticity equations. Mr. Arakawa

**165. Laboratory in Meteorological Observation.** Laboratory, six hours. Prerequisite: junior standing. Theory and application of instrumentation in field and laboratory. The material covered is partly determined by the students' interests.

**M180. Nonlinear Waves.** (Same as Earth and Space Sciences M180.) Lecture, three hours; discussion, one hour. Prerequisite: course M140 or consent of instructor. Basic concepts and examples of nonlinear wave behavior: limit cycles, attractors, bifurcations, relaxation, subharmonics, solitons, periodic versus chaotic behavior, Lorenz masks and Rossler bands. Mr. Newman, Mr. Venkateswaran

**198. Operational Meteorology (2 units).** Laboratory, six hours. Prerequisite: 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. Mr. Wakimoto

**199. Special Studies in Meteorology (2 or 4 units).** Prerequisite: consent of instructor. Special individual study.

## Graduate Courses

### Dynamic and Synoptic Meteorology

**201. 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 focus on the design of a field project. Mr. Wakimoto

**206. Atmospheric Convection.** Lecture, three hours. Prerequisite: course 209 or consent of instructor. Rayleigh convection. Buoyant convection from isolated sources. Thermodynamics of moist air. Theory of moist convection. Observations of atmospheric convection. Models of cumulus convection. Mr. Yanai

**208A. 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. Mr. Wurtele

**208B. Atmospheric Diffusion and Air Pollution.** 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 control. Mr. Wurtele

**209. Introduction to Geophysical Fluid Dynamics.** Lecture, three hours. Equation of motion in a rotating frame, with special emphasis on its application to the shallow-water model. Potential vorticity. Geostrophic motion. Gravity and Rossby waves. Quasi-geostrophic motion. Laplace's tidal equation. Kelvin and mixed Rossby gravity waves. Mr. Arakawa

**210A. Atmospheric Wave Motions.** Lecture, three hours. Prerequisite: course 209. Oscillations of a compressible, stratified, and rotating atmosphere. Geostrophic adjustment. Scale analysis and dynamics of quasi-geostrophic motion. Quasi-geostrophic wave instability. Vertical propagation of wave energy. Mr. Arakawa

**210B. Dynamics of Planetary Circulations.** Lecture, three hours. Prerequisite: course 210A. 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. Mr. Mechoso

**212A. Numerical Methods in Geophysical Fluid Dynamics.** Lecture, three hours. Prerequisite or corequisite: course 209. 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. Spectral methods. Mr. Arakawa

**212B. Numerical Modeling of the Atmosphere.** Lecture, three hours. Prerequisites: courses 210A and 212A, or consent of instructor. Physical and computational design of numerical weather prediction and climate simulation models. The basic dynamical models. Vertical, horizontal, and time differencing. Parameterizations of sub-grid scale processes. Mr. Arakawa

**214. Climatology.** Lecture, three hours. Prerequisite: course 210A or consent of instructor. Observations of the atmospheric general circulation and the present climatic state. Global budgets of energy and angular momentum. The hydrologic cycle. Observations of past climates and history of climatic change. Feedback mechanisms determining the sensitivity of climate. Possible causes of climatic changes. Numerical experiments in climatic sensitivity.

**216A. Tropical Motions Interacting with Cumulus Convection.** Lecture, three hours. Prerequisite: course 206. Cumulus convection and the boundary layer in the tropics. Interaction of cumulus convection with the large-scale motion. Tropical cyclones. Monsoon meteorology. Mr. Yanai

**216B. Wave Motions in the Tropical Atmosphere.** Lecture, three hours. Prerequisite: course 210A. Basic theory of equatorially trapped waves. Introduction to spectral analysis. Observations of tropical wave disturbances. Generation mechanisms of tropical waves. The quasi-biennial and semiannual oscillations. Mr. Yanai

**218. Dynamics of the Atmosphere-Ocean Systems.** Lecture, three hours. Transfer of properties between atmosphere and ocean; wind-driven ocean currents; coastal upwelling. Air-sea interactions. Effects of the oceans on climate. Mr. Mechoso

**219. Special Topics in Dynamic Meteorology (2 to 4 units).** Content varies from year to year.

## Cloud Physics and Precipitation

**221A. Atmospheric Chemistry I.** Lecture, three hours. Prerequisite: course 156 or consent of instructor. Clean air chemistry of the troposphere; trace gases of biogenic and anthropogenic origin; tropospheric air pollution chemistry; physical and chemical properties of atmospheric aerosols; wet and dry deposition of pollutant gases and aerosol particles.

Mr. Montague

**221B. Atmospheric Chemistry II.** Lecture, three hours. Prerequisite: course 156 or consent of instructor. Composition of the stratosphere, mesosphere, and ionosphere; chemistry of ground and excited state neutrals and of ions in the upper atmosphere; stratospheric pollution; chemistry of the airglow and nightglow; chemistry of other planetary atmospheres.

Mr. Montague

**223A. Cloud and Precipitation Physics I.** Lecture, three hours. Prerequisite: course 152 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.

**223B. Cloud and Precipitation Physics II.** Lecture, three hours. Prerequisite: course 223A. Theory of the 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.

**224. Atmospheric Electricity.** Lecture, three hours. Prerequisites: course 223B, Physics 110A, 110B. Fair weather electricity; atmospheric ions; electric structure of stormy and nonstormy clouds; electric charge generation mechanisms in atmospheric clouds; physics of thunder and lightning; effect of electric fields and charges on cloud and precipitation formation.

**228A. Clouds and Radiation.** Lecture, three hours. Radiation budget of cloudy atmospheres, including cloud-albedo feedback mechanisms; dependence of cloud radiative properties on microphysical parameters; test-bed modeling techniques of radiative effect of clouds; radiative dynamical interactions in cloudy atmospheres.

**228B. 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.

## Radiation

**235. Infrared Radiative Transfer.** Lecture, three hours. Prerequisite: course 153. Theory of radiative transfer. Approximate solutions to the equation of transfer. Absorption spectroscopy; band models; absorption by atmospheric gases; fluxes and heating rates. Satellite radiation measurements.

**236. Scattering Processes in the Atmosphere.** Lecture, three hours. Prerequisite: course 153. Equation of transfer in a scattering medium. Stokes formalism; Rayleigh and Mie theories; polarization of skylight; scattering in a turbid atmosphere, aerosols and their effects on the radiation balance of the atmosphere. Experimental methods of determining aerosol parameters and their significance to meteorology.

**238. Radiative Transfer in the Earth's Atmosphere.** Lecture, three hours. Prerequisite: course 153. Critical review of methods available to calculate the transfer of radiation (visible, ultraviolet, and infrared) through the atmosphere. Computations of fluxes and heating rates using various methods. Familiarity with the available techniques in the literature is provided.

## Upper Atmospheric and Space Physics

**240A. Solar System Magnetohydrodynamics.** Lecture, three hours. Prerequisite: course M154 or consent of instructor. Derivation of the MHD equations with two fluid aspects, generalized Ohm's law, small amplitude waves, discontinuities, shock waves, and instabilities. Applications to the statics and dynamics of the solar wind and planetary magnetospheres and to solar wind-magnetosphere-ionosphere coupling.

Mr. Siscoe

**240B. Solar System Microscopic Plasma Processes.** Lecture, three hours. Prerequisite: course M154 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.

Mr. Thorne

**240C. Ionospheric Plasmas.** Lecture, three hours. Prerequisites: courses M154, 240B. Formation of planetary ionospheric layers; transport processes; currents and electric fields; ionospheric plasma instabilities; nonlinear effects and artificial modification.

Mr. Venkateswaran

**246. Physics of the Ionosphere.** Lecture, three hours. Prerequisites: Physics 110A and 110B, or consent of instructor. Structure, composition, and dynamics of ionospheric layers.

Mr. Venkateswaran

**247. Radiation Belt Plasma Physics.** Prerequisite: course 240B or consent of instructor. Turbulent plasma instabilities and their relation to satellite observations and magnetospheric structure. Processes responsible for the source, loss, and transport of energetic radiation belt particles.

Mr. Thorne

**248. Advanced Topics in Interaction between Lower and Upper Atmospheres.** Lecture, three hours. Content varies from year to year.

Mr. Venkateswaran

**249. Special Topics in Solar Planetary Relations (2 to 4 units).** Selected topics of current research interest in solar wind, magnetospheric, or ionospheric physics.

**254. Radiative and Photochemical Processes of the Middle Atmosphere.** Lecture, three hours. Prerequisites: courses 153, 246, 255. Ultraviolet absorption processes. Infrared transfer by CO<sub>2</sub> and O<sub>3</sub>. Radiative and photochemical roles of other trace constituents. Remote sensing of the middle atmosphere.

Mr. Venkateswaran

**255. Dynamics of the Stratosphere and the Mesosphere.** Lecture, three hours. Prerequisite: course 210A. Photochemistry and radiation regime of the middle atmosphere; propagation of waves of tropospheric origin; radiative and photochemical damping effects; excitation and propagation of atmospheric tides; wave-zonal wind interactions; internal instabilities; theories of circulation features, including annual, semiannual, and quasi-biennial oscillations and the buildup and breakdown of polar vortex.

Mr. Venkateswaran

**256. Remote Sensing.** Prerequisite: course 255 or consent of instructor. Remote sensing of stratospheric temperature and composition — theory and practice.

Mr. Venkateswaran

**257. Radiation, Pollution, and Climate.** Lecture, three hours. A breadth requirement for graduate students; specific background in radiation is not assumed. External and feedback influences of radiation and climate/carbon dioxide and climate/cloud albedo problems. Effects of photochemical, thermal, and particulate pollution on urban and global climates. Climate modeling.

Mr. Venkateswaran

## Special Studies

**260. Seminar in Meteorology (2 units).**

**261. Seminar in Atmospheric Dynamics (2 units).**

**262. Seminar in Cloud and Precipitation Physics (2 units).**

**263. Seminar in Atmospheric Radiation (2 units).**

**264. Seminar in Physics of the Upper Atmosphere (2 units).**

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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** 137A, 137E, 240

**Chemistry and Biochemistry** 103, 110A, 110B, C123A-C123B, 215D, 223C, 225

**Civil Engineering** 181A

**Computer Science** 10C

**Earth and Space Sciences** 101, M140, M154, 202, 203, 204, M211, 214, 228, 250, 261, 265

**Electrical Engineering** 117A, 117B, M118

**Mathematics** 131A-131B, 132, 135A-135B, 136, 141A-141B, 142, 145, 146, 150A-150B-150C, 152A-152B, 250C, 265A-265B, 266A, 266B-266C, 267A-267B, 269A-269B-269C, 271A, 271B, 271C, M274A, M274B, 276A-276B, 276C

**Mechanical, Aerospace, and Nuclear Engineering** 103, 131A, 150A, 150B, M192A, 192B, 192C, 250A, 250B, 250C, 251A, 251B, 251C, 252A, 252B, 259A

**Physics** 108, 110A, 110B, 112, 115A, 115B, M122, 131, 132, 210A, 210B, 215A, 215B, 222A-222B-222C, 231A, 231B, 231C

**System Science** 124A

## Biochemistry

See Biological Chemistry (School of Medicine), Biology, and Chemistry and Biochemistry

# Biology

2203 Life Sciences, 825-3481

## Professors

Albert A. Barber, Ph.D. (*Cell Biology*)  
 George A. Bartholomew, Ph.D. (*Zoology*)  
 Joseph Cascarano, Ph.D. (*Cell Biology*)  
 David J. Chapman, Ph.D.  
 William R. Clark, Ph.D. (*Cell Biology*)  
 Martin L. Cody, Ph.D.  
 Nicholas E. Collias, Ph.D. (*Zoology*)  
 Wilbur T. Ebersold, Ph.D.  
 Roger O. Eckert, Ph.D. (*Neurobiology*)  
 Franz Engelmann, Ph.D.  
 John H. Fessler, Ph.D. (*Molecular Biology*)  
 Robert Goldberg, Ph.D.  
 Malcolm S. Gordon, Ph.D.  
 Michael Grunstein, Ph.D.  
 Thomas R. Howell, Ph.D. (*Zoology*)  
 Thomas W. James, Ph.D. (*Cell Biology*)  
 J. Lee Kavanau, Ph.D.  
 James A. Lake, Ph.D. (*Molecular Biology*)  
 George G. Laties, Ph.D. (*Plant Physiology*)  
 O. Raynal Lunt, Ph.D.  
 Austin J. MacInnis, Ph.D. (*Cell Biology*)  
 Jeffrey Miller, Ph.D. (*Genetics*)  
 James G. Morin, Ph.D. (*Zoology*)  
 Leonard Muscatine, Ph.D.  
 Kenneth A. Nagy, Ph.D., in Residence  
 Park S. Nobel, Ph.D.  
 John D. O'Connor, Ph.D. (*Developmental Biology*)  
 Bernard O. Phinney, Ph.D.  
 Dan S. Ray, Ph.D. (*Molecular Biology*)  
 Philip W. Rundel, Ph.D.  
 Winston A. Salser, Ph.D. (*Molecular Biology*)  
 Richard W. Siegel, Ph.D.  
 Larry Simpson, Ph.D. (*Cell Biology*)  
 Clara M. Szego, Ph.D.  
 J. Philip Thornber, Ph.D. (*Molecular Biology*), Chair  
 Peter P. Vaughn, Ph.D. (*Zoology*)

## Emeritus Professors

David Appleman, Ph.D.  
 Jacob B. Biale, Ph.D.  
 Frederick Crescitelli, Ph.D.  
 Eric B. Edney, Ph.D.  
 Karl C. Hamner, Ph.D.  
 Arthur W. Haupt, Ph.D.  
 F. Harlan Lewis, Ph.D.  
 Mildred E. Mathias, Ph.D.  
 Everett C. Olson, Ph.D.  
 Charles A. Schroeder, Ph.D.  
 Flora Murray Scott, Ph.D.  
 Fritof S. Sjostrand, Ph.D.  
 Henry J. Thompson, Ph.D.  
 Boyd W. Walker, Ph.D.  
 Vladimir Walters, Ph.D.  
 Samuel G. Wildman, Ph.D.

## Associate Professors

Clifford F. Brunk, Ph.D. (*Cell and Molecular Biology*)  
 Arthur C. Gibson, Ph.D. (*Botany*)  
 Elma Gonzalez, Ph.D. (*Cell Biology*)  
 Henry A. Hespeneheide, Ph.D.  
 Harumi Kasamatsu, Ph.D.  
 Judith A. Lengyel, Ph.D.  
 John R. Merriam, Ph.D. (*Genetics*)  
 Peter M. Narins, Ph.D.  
 Paul H. O'Laigue, Ph.D.  
 Charles C. Taylor, Ph.D.  
 Allan J. Tobin, Ph.D.  
 Elaine M. Tobin, Ph.D.  
 Richard K. Vance, Ph.D.

## Assistant Professors

J. Chlöe Bulinski, Ph.D. (*Cell Biology*)  
 Donald G. Buth, Ph.D.  
 Michael Greenfield, Ph.D.

Meyer B. Jackson, Ph.D.  
 Laurie Vitt, Ph.D.  
 Dan B. Walker, Ph.D. (*Botany*)

## Adjunct Professor

William M. Hamner, Ph.D.

## Visiting Lecturers

Kathleen Diamond, Ph.D.  
 Eric Mundall, Ph.D.  
 Steve Strand, Ph.D.

## Scope and Objectives

Studies in biology touch every aspect of human existence, and answers to human problems are a challenge to modern biology. To meet this challenge, the Biology Department offers a wide spectrum of undergraduate and graduate programs which fall under the broad categories of population, organismic, developmental, cell, and molecular biology. These all have their counterparts in areas of modern life from environmental problems to viruses and cancer.

Each of these disciplines, as well as fundamental backgrounds in mathematics, physics, and chemistry, is part of a general Bachelor of Science degree in Biology. The department also offers bachelor's degrees with specializations in animal physiology, cellular and developmental biology, ecology, genetics, marine biology, molecular biology, neurobiology, and plant biology designed for students motivated to enter special advanced studies quickly.

Advanced studies in biology are provided through the Master of Arts and Ph.D. degrees, which may be acquired only through concentrated study and independent innovative research culminating in the presentation of a thesis. Candidates for a higher degree may avail themselves of a program of rotation through various laboratories in the design of their degree program.

## Bachelor of Science Degree

### Pre-Biology Major

Students who have not completed all the courses required as "Preparation for the Major" are pre-biology majors. Upon completion of these courses with a grade of C- or better in each, students should petition to enter the biology major in the Undergraduate Affairs Office.

In order to be admitted as pre-biology majors, transfer students who have 80 units or more must have completed one year of general chemistry with laboratory, Biology 5 and 7, or equivalent, and at least one of the following sequences: (1) one year of calculus, (2) one year of calculus-based physics, or (3) two courses in organic chemistry with laboratory.

### Preparation for the Major

The following courses are required:

- (1) Biology 5, 5L, 6, 7, 8, 8L

- (2) Chemistry 11A, 11B/11BL, 11C/11CL, 21, 23, 25

- (3) Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; courses 31A, 31B, 32A are strongly recommended for students intending to study ecology, evolution, or population genetics.

- (4) Physics 6A, 6B, 6C

## The Major

The following courses are required:

- (1) Three courses from the core list (one from each of the following groups):

- (a) Morphology Systematics: Biology 100, 101, 105, 110, 153, Microbiology 101

- (b) Developmental and Molecular Biology: Biology 138, 141, 144, 146

- (c) Physiology: Biology 158, 162, 166, 167

- (2) Two additional upper division biology courses

- (3) Four courses which may be selected from upper division biology or any upper division course in microbiology, chemistry, mathematics (except Mathematics 100 through 106), physics, or from the approved list which may be obtained in the Undergraduate Affairs Office. A maximum of four units of Biology 199 may be applied toward the major. Credit for 199 courses from other departments may not be applied.

## Additional Requirements

- (1) Six-unit courses count as only one course on requirements for the major.

- (2) A maximum of eight units of Biology 190 or four units of Biology 199 may be applied toward the major.

- (3) Courses applied toward requirements for "Preparation for the Major" and the major must be taken for a letter grade.

- (4) Biology majors must earn a C- or better in each core course, a 2.0 average in all upper division biology courses, and a 2.0 average in the nine courses comprising the major.

## Honors in Biology

An overall GPA of 3.4 and a 3.4 in the biology major are required for graduation with honors in biology. Highest honors in biology are awarded to majors who have a GPA of 3.6 overall and a 3.6 GPA in the major at graduation and who have satisfactorily completed Biology 190A-190B.

## Graduate Study

The department offers M.A. and Ph.D. degrees in Biology, with specialization in a wide spectrum of fields. Students who plan to enter graduate school are urged to seek the advice of staff members in their field of interest.

## Admission

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 must 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 Aptitude Test (verbal, quantitative, and analytical) of the Graduate Record Examination. The Advanced Test in Biology is not 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, scholarly activities, teaching, and related academic functions.

You also are required to complete the departmental written qualifying examination, given in the Fall and Spring Quarters, at an early point in your graduate career. The exact timing and content of the examination vary between the divisions.

Applications, departmental brochures, and additional information may be obtained from the Graduate Affairs Office, Department of Biology, 2316 Life Sciences, UCLA, Los Angeles, CA 90024.

## Teaching Credentials

Teaching credentials and Ph.D. degrees in Education (with specialization in biology) are obtained through the Graduate School of Education with assistance from the graduate adviser in the Biology Department. The cognate requirement in biology may be satisfied by completing the equivalent of the master's degree in biology.

## Program of Study

The department is organized for administrative purposes into two divisions based on mutual interest. Applications should be directed to either Division I (molecular, cell, and developmental biology) or Division II (organismic and population biology). The major fields and subdisciplines are listed under faculty interests in the departmental brochure.

Study consists of coursework and research within the department and within related programs in biochemistry, geology, microbiology, and molecular biology on campus. Opportunities are also available off campus for intensive study of marine biology at the Catalina Marine Science Center in the Fall Quarter (CMBQ) and of field biology in the Spring Quarter (FBQ).

## Foreign Language Requirement

No foreign language is prerequisite to admission to the M.A. or Ph.D. program, and there is no uniform language requirement for obtaining the Ph.D. However, in the pursuit of certain subspecialties of biology, you may be required to gain proficiency in one or more foreign languages.

## Master of Arts Degree

### Admission

Applications are evaluated by the appropriate divisional admissions committee.

### 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 as noted below. No more than two 596 courses (eight units) may be applied toward the nine courses required for the degree; only one 596 course (four units) may be applied toward the minimum graduate course requirement. Courses graded S/U may 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 for you by your guidance committee.

### Thesis Plan

A thesis reporting the results of an original investigation, written to conform to the requirements of the Graduate Division, is presented to and approved by the master's thesis committee of three faculty members. Before beginning work on the thesis, you must obtain approval of the subject and general plan from the faculty members concerned and from the thesis committee.

### Comprehensive Examination Plan

If you select this plan, you must take a three-hour examination prepared and graded by your committee or committee chair and approved by the graduate adviser. The examination is graded pass or fail. If you fail, recommendation for or against a second examination must be made by the graduate adviser.

## Ph.D. Degree

### Admission

Each division determines admission of students to the Ph.D. program separately. Ph.D. students in Division I (molecular, cell, and developmental biology) are admitted in the Fall Quarter. Applications to Division II (organismic and population biology) are reviewed by the division's admissions committee which advises prospective sponsors about the desirability of admission.

## Course Requirements

There are no formal course requirements for the Ph.D., although specific requirements may be established individually by your guidance committee. You must enroll for full-time study, as defined by the Graduate Division.

You 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.

### Teaching Experience

Each student is required to complete one academic year as a teaching assistant.

### Oral Qualifying Examination

The University Oral Qualifying Examination is conducted by the doctoral committee as prescribed by the Graduate Division. It includes your preparation, presentation, and defense of an original written research proposal. The examination is graded pass, fail, or repeat. A failure requires dismissal. The second attempt at the examination is graded pass/fail. The examination must be completed by the end of the third year following first registration. You are advanced to candidacy following successful completion of this examination.

### Final Oral Examination

Final approval of the dissertation in the department is accomplished when the committee approves the written form and is satisfied with the final oral examination.

### Candidate in Philosophy Degree

Requirements for the C.Phil. degree are identical with those for advancement to candidacy for the Ph.D., except that only four quarters of academic residence are required, including three quarters in continuous residence at UCLA. The C.Phil. is not given as a terminal degree.

## Lower Division Courses

**2. Principles of Biology.** Lecture, three hours; laboratory, 90 minutes. Designed for nonmajors. Not open to students with credit for course 5 or 7. Lectures include the structure and chemical composition of cells, animal structure and diversity, cellular respiration, photosynthesis, major organ systems with emphasis on human cell division, reproduction, development, ecology, population growth, genetics, evolution. Laboratory includes structure and function of cells, morphology of plants and animals, circulatory and nervous systems, embryology, plant diversity and adaptation, human genetics.

**5. Biology of Organisms.** Lecture, three hours; discussion/demonstration, two hours. Comparative morphology and embryology of the major plant and animal phyla; function of organ systems, including gas exchange, transport, regulation of the internal environment, hormones, coordination, and the nervous system.

**5L. Organismic and Environmental Biology Laboratory (2 units).** (Formerly numbered 6L.) Lecture, one hour; laboratory, three hours. Prerequisite: course 5. Introductory biology laboratory, including basic cell and microorganism organization, morphology and diversity of organisms, population biology, evolution, and community ecology.



**6. Ecology and Evolution.** Lecture, three hours; discussion, two hours. Prerequisites: course 5 and Mathematics 3A or 31A. A survey of the principles of population growth and ecology, competition, predation, community ecology, environmental physiology, population genetics, natural selection, and speciation.

**7. Introductory Cellular and Molecular Biology.** Lecture, three hours; discussion/demonstration, two hours. Prerequisites: course 5, Chemistry 15, 21. An integrated introduction to cellular and subcellular biology, including cells and organelles, molecular biology, cell cycles, and developmental biology.

**8. Introductory Genetics.** Lecture, three hours; discussion/demonstration, 90 minutes. Prerequisite: course 7. Principles of Mendelian inheritance and the chromosomal basis of heredity in prokaryotes and eukaryotes, recombination, biochemical genetics, mutation, DNA, the genetic code, gene regulation, genes in populations.

**8L. Cellular and Molecular Biology Laboratory (2 units).** Laboratory, three hours. Prerequisite or corequisite: course 8. Introductory laboratory experience, including bacterial growth, mitosis and meiosis, genetics, molecular biology, and developmental biology.

**10. Plants and Civilization.** Lecture, three hours; demonstration, one hour. Designed for nonmajors. The origin of crop plants; man's role in the development, distribution, and modification of food, fiber, medicinal, and other plants in relation to their natural history. Mr. Gibson (F,Sp)

**13. Evolution of Life.** Lecture, three hours; discussion, one hour. Not open to life sciences majors. Limited to 100 students. An introduction to biology within the framework of evolutionary theory. The relationships of evolutionary thought to other areas of knowledge and society. Natural selection and the origin of variation are examined in the context of genetics, molecular biology, physiology, phylogeny, population dynamics, behavior, and ecology. Emphasis on the critical role of historical processes. (F)

**20. Introduction to Human Heredity.** Lecture, two hours; discussion, one hour; laboratory, two hours. Not open to students with a prior college course in genetics; not intended to satisfy the requirements of medical or dental schools. Man's inheritance and its biological basis are introduced through lectures, readings, and laboratory exercises with *Drosophila*. Topics include prenatal development, Mendelizing factors, the role of chromosomes in heredity, and the role of genes in disease and population structure. (Sp)

**25. The Oceans.** Lecture, three hours; discussion, one hour. Not open to students in the sciences or to students with credit for Earth and Space Sciences 15. Limited to 40 students. Physical and chemical processes that take place in the oceans, with emphasis on their effects on organisms. (W)

**30. Biology of Cancer.** An introduction to molecular, cellular, and clinical aspects of cancer and a consideration of the sociological and psychological impact of cancer on the individual and society. Each lecture/discussion period is given by an invited lecturer who is prominent in cancer research or treatment. May not be applied toward the B.S. degree requirements. P/NP grading.

**35. Mathematical Ideas in Biology.** Lecture, three hours; discussion, one hour. Prerequisites: one year of calculus and consent of instructor. The use of mathematical ideas and analysis in the formulation and evaluation of theories of biological phenomena such as growth, growth control, biological rate processes, and applications of random walk theory. Coverage of topics is tailored to specific student interests.

Mr. Kavanau

## Upper Division Courses

**100. Biology of Lower Plants (6 units).** Lecture, four hours; laboratory, six hours. Prerequisite: course 5 or equivalent or consent of instructor. An introduction to the biology of algae, fungi, and bryophytes, with emphasis on form, function, and development, and the role of lower plants in the environment. Students are strongly encouraged to take both courses 100 and 101 since these represent a course sequence surveying the entire plant world as appropriate background for upper division courses in plant biology.

Mr. Chapman

**101. Biology of Vascular Plants (6 units).** Lecture, three hours; laboratory, six hours. Prerequisite: course 5 or equivalent or consent of instructor. An 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 100 and 101 since these represent a course sequence surveying the entire plant kingdom as appropriate background for upper division courses in plant biology. Mr. D. Walker

**102. Biology of Marine Invertebrates.** Lecture, five hours; laboratory, fifteen hours (five-week intensive course). Prerequisite: completion of "Preparation for the Major" 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. Course is given at the *Catalina Marine Science Center*. Mr. Morin, Mr. Muscatine

**103. Taxonomy of Flowering Plants (4 or 8 units).** *The course is offered either as a quarter-long course for four units or as an eight-unit course as part of the field biology quarter.* The four-unit course has lecture, two hours; laboratory, six hours. The evolution, systematics, morphology, principles of taxonomy, phylogenetic systems, nomenclature, and modern methods of investigation are covered. The eight-unit course covers the same basic lecture and laboratory material in five intensive weeks. This is followed by an extended field trip where students do individual field projects. Mr. Gibson

**105. Biology of Invertebrates (6 units).** Lecture, three hours; laboratory/field trips, six hours. Prerequisite: completion of "Preparation for the Major." Introduction to the systematics, evolution, natural history, morphology, and physiology of the invertebrates.

Mr. Morin, Mr. Muscatine (F)

**106A-106B. Experimental Marine Invertebrate Zoology (6 units each).** Lecture, two hours; laboratory, twelve hours. Prerequisites: courses 105 and 166 (latter may be taken concurrently with 106A), or equivalent, and consent of instructor. Course 106A is prerequisite to 106B. An advanced course of natural history, physiology, biochemistry of invertebrates, with emphasis on independent laboratory and field investigations. Mr. Morin, Mr. Muscatine

**107. Entomology (4 or 8 units).** Prerequisites: courses 5 and 6. *The course is offered either as a quarter-long course for four units or as an eight-unit course as part of the field biology quarter.* The four-unit course has lecture, three hours; laboratory, six hours; approximately four field trips. The morphology, physiology, development, systematics, behavior, and ecology of insects are covered. The eight-unit course covers the same basic lecture and laboratory material in two and one-half intensive weeks. This is followed by an extended field trip where students do individual field projects in insect biology. Mr. Greenfield

**110. Vertebrate Morphology.** Lecture, three hours; laboratory, four hours. Prerequisites: courses 5, 5L, 6. A study of vertebrate morphology and evolution from the viewpoint of comparative anatomy of adult forms, developmental anatomy, and paleontology. Laboratory study of selected vertebrates.

Mr. Vaughn (F,W)

**111. Biology of Vertebrates.** Lecture, three hours; demonstration/field trips/discussion, three hours. Prerequisites: courses 5, 5L, 6. The adaptations, behavior, and ecology of vertebrates.

Mr. Bartholomew, Mr. Howell, Mr. Vitt (F,W)

**112. Ichthyology.** Lecture, two hours; laboratory, six hours; field trips. Prerequisites: courses 5 and 6, 110 or 111, or consent of instructor. Limited to 24 students. The biology of freshwater and marine fishes, with emphasis on their evolution, systematics, morphology, zoogeography, and ecology. Field trips examine the fishes of the Southern California shoreline, tidepools, and coastal streams. Mr. Buth

**113. Herpetology (4 or 8 units).** Prerequisites: course 111, 120, or 122, and consent of instructor. *The course is offered alternately as a four-unit course to be given during a conventional academic quarter or as an eight-unit course as part of the field biology quarter.* The four-unit course has lecture, three hours; laboratory, six hours; approximately four weekend field trips. The systematics, distribution, physiology, behavior, and ecology of amphibians and reptiles are covered. The eight-unit course covers the same basic lecture and laboratory material in two intensive weeks. This is followed by an extended field trip where students do individual field projects in behavior, physiological ecology, or field ecology.

**114. Ornithology.** Lecture, two hours; laboratory/discussion/field trips, six hours. Prerequisites: course 111 and consent of instructor. Limited enrollment. The systematics, distribution, physiology, behavior, and ecology of birds. Mr. Howell

**116AH. Honors Seminar in Organismic and Evolutionary Biology (2 units).** Prerequisites: course 5 and honors program standing, or consent of instructor. Reading and group discussion of organismic topics introduced in course 5. Students are expected to participate in the honors program and continue into course 116BH. P/NP (for students unable to take course 116BH due to academic or scheduling problems) or In Progress (credit to be given only upon completion of course 116BH) grading.

**116BH. Honors Seminar in Organismic and Evolutionary Biology (2 units).** Prerequisites: courses 6, 116AH. Reading and group discussion of evolutionary and ecological topics introduced in course 6. Students are expected to participate in the honors program and must have taken course 116AH the previous quarter.

**M117. Vertebrate Paleontology.** (Same as Earth and Space Sciences M117.) Lecture, three hours; laboratory, three hours. Prerequisite: course 110. Recommended: a course in general geology. Limited enrollment. The fossil record of the evolution of the vertebrates, with emphasis on the morphology of primitive forms in the series from fish to mammal.

Mr. Vaughn (Sp)

**M118. Paleobotany.** (Same as Earth and Space Sciences M118.) Lecture, three hours; laboratory, three hours. Prerequisite: one course in biological science or consent of instructor. Recommended: Earth and Space Sciences 2 or equivalent. Survey of morphology, paleobiology, and evolution of vascular and nonvascular plants during geologic time, with particular emphasis on major evolutionary events.

Mr. Schopf

**119. Mathematical Ecology.** Lecture, three hours. Prerequisites: course 6, Mathematics 32A, or consent of instructor. Recommended: course 122. Models of population growth and interspecies interactions, formulated as multidimensional, nonlinear differential, or difference equations, are used to explore the structure and dynamics of ecological populations and communities.

Mr. Vance



**120. Evolutionary Biology.** Lecture, three hours; laboratory, two hours. Prerequisite: completion of "Preparation for the Major." Highly recommended: Mathematics 31A, 31B, 32A. Recommended for biology majors specializing in environmental and population biology. Introduction to the mechanics and processes of evolution, with emphasis on natural selection, population genetics, speciation, evolutionary rates, and patterns of adaptation.

Mr. Cody, Mr. Hespeneide (W)

**121. Seminar in Ecology (2 units).** Prerequisites: course 120 or 122, and consent of instructor. Undergraduate seminar in ecology; reading and discussion of current research, including preparation of review paper or annotated bibliography. May be repeated twice for credit.

Mr. Hespeneide

**122. Ecology.** Lecture, three hours; laboratory, three hours. Prerequisite: completion of "Preparation for the Major." Highly recommended: Mathematics 31A, 31B, 32A. Recommended for biology majors specializing in environmental and population biology. Introduction to population and community ecology, with emphasis on the growth and distribution of populations, interactions between species, and the structure, dynamics, and functions of communities and ecosystems.

Mr. Cody, Mr. Vance (F)

**123. Ecology of Marine Communities.** Lecture, five hours; laboratory, fifteen hours (five-week intensive course). Prerequisite: completion of "Preparation for the Major" or consent of instructor. Field study of the natural history and ecology of marine organisms and communities. The course involves an independent research project and is given at the *Catalina Marine Science Center*.

Mr. Vance

**124. Field Ecology (4 or 8 units).** Lecture, two hours; laboratory or field trip, ten hours. Prerequisites: course 120 or 122, and consent of instructor. *The course is offered either as a 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 the course is given as part of the field biology quarter, it is eight units and lasts for five weeks.* Field and laboratory research in ecology, the collection, analysis, and write-up of numerical data, with emphasis on design and execution of field studies.

Mr. Cody

**125. Plant Population Ecology (4 or 8 units).** Lecture, two hours; laboratory, six hours; field trips. Prerequisites: course 120 and consent of instructor. *The course is offered either as a quarter-long course for four units or in the field biology quarter as a concentrated five-week course for eight units.* A study of ecological variation, structure, distribution, and reproductive biology of plant populations, emphasizing field studies of selected populations and ecosystems.

Mr. Cody

**126. Behavioral Ecology (4 or 8 units).** Prerequisites: courses 5, 6. *The course is offered either as a quarter-long course for four units or as an eight-unit course as part of the field biology quarter.* The four-unit course has lecture, three hours; discussion, three hours. Animal communication behavior, island biogeography, and evolution of social behavior are covered. The eight-unit course covers the same basic lecture material in five intensive weeks. This is followed by an extended field trip where students do individual projects in behavioral ecology.

Mr. Narins

**M127. Soils, Plants, and Society.** (Same as Geography M127.) Lecture, three hours; field trip. Prerequisites: Chemistry 11A, 11B, 11C, or equivalent, or consent of instructor. A general treatment of soil development and morphology and the physical and chemical properties of soils as they relate to plant growth and distribution; soil resources, management, conservation, and cultural aspects. Soil profiles examined on the field trip are used to explain developmental phenomena.

Mr. Lunt

**128. Plant Physiological Ecology (4 or 8 units).** Lecture, three hours; laboratory/field, three hours. A study of plant-environmental interactions under natural conditions. Emphasis on transpiration and photosynthesis, leaf temperatures, and water movement in the soil-plant-atmosphere continuum. Individual student projects. *When the course is given as part of the field biology quarter, it is eight units, and the individual research project is correspondingly expanded.*

Mr. Nobel

**129. The Behavior of Animals.** Lecture, three hours; discussion, three hours. Prerequisite: course 111 or consent of instructor. Ecological significance, underlying mechanisms, and evolution of behavior, with special reference to animal sociology under natural conditions.

Mr. Collias

**130. Behavior Research Problems.** Lecture, three hours; laboratory, two hours. Prerequisites: courses 5, 6, and consent of instructor. Systems controls and nonobtrusive sensing procedures for behavior studies in the laboratory and field. Rationale, design, and limitations of laboratory studies of behavior.

Mr. Kavanau

**131. Insect Ecology (4 or 8 units).** Lecture, two hours; laboratory or field trip, eight hours. Prerequisites: course 120 or 122, and consent of instructor. *The course is offered either as a quarter-long course with weekend field trips or as part of the field biology quarter (eight units; amount of fieldwork increased accordingly).* Analysis of the ecological roles of insects in terrestrial communities, with emphasis on interactions with both plants and vertebrates. Students perform group and individual field projects.

Mr. Greenfield, Mr. Hespeneide

**132. Field Behavioral Ecology (8 units).** Lecture, two hours; laboratory/field trip, ten hours. Prerequisites: courses 5, 6, and consent of instructor. *The five-week course is offered only as part of the field biology quarter.* Field research in behavioral ecology, emphasizing animal communication. The design and execution of individual and small group field projects during an extended field trip are stressed.

Mr. Greenfield, Mr. Narins

**C134. Physiological Ecology of Desert Animals (2 units).** Prerequisites: courses 111, and 166 or 167. A consideration of ecologically relevant aspects of animal physiology, with emphasis on desert animals. Concurrently scheduled with course C214.

Mr. Bartholomew, Mr. Nagy

**135. Population Genetics.** Lecture, three hours; discussion, one hour. Prerequisite: course 8. Highly recommended: Mathematics 31A, 31B. Basic principles of genetics of population, dealing with the genetic structure of natural populations and the mechanisms of evolution. The course covers equilibrium conditions and the forces altering gene frequencies, polygenic inheritance, and the methods of quantitative genetics.

Mr. Taylor

**136A-136B-136C. Seminar in Genetics (2 units each).** Prerequisites: course 8 and consent of instructor. Undergraduate seminar in genetics; reading and group discussion of current research in genetics.

Mr. Siegel (F,W,Sp)

**138. Developmental Biology.** Lecture, three hours; discussion, one hour. Prerequisite: completion of "Preparation for the Major." Synopsis of fundamental concepts in embryology and a survey of current topics in developmental biology.

Ms. Lengyel, Mr. O'Connor, Mr. Tobin

**139. Introductory Laboratory in Developmental Biology.** Lecture, two hours; laboratory, six hours. Prerequisites: course 138 and consent of instructor. Introductory course in developmental biology, including cell and organ culture and biochemical analysis of developing systems.

**141. Molecular Basis of Plant Differentiation and Development.** Lecture, three hours; discussion, one hour. Prerequisites: courses 5, 7, 8. An in-depth study of the basic processes of development and the molecular aspects of the developmental process as it relates to the plant kingdom. A variety of developing systems is discussed (protists, fungi, lower and higher plants), with the goal of developing a unified concept of differentiation.

Mr. Goldberg, Ms. Tobin (Sp)

**142A-142B-142C. Seminar on Topics in Developmental Biology (2 units each).** Prerequisites: course 138 and consent of instructor. Undergraduate seminar on topics in developmental biology. Reading and group discussions of current research.

Ms. Lengyel, Mr. O'Connor, Mr. Tobin (F,W,Sp)

**144. Molecular Biology.** Lecture, three hours; discussion, one hour. Prerequisites: courses 7, 8. Strongly recommended: Chemistry 25. A course in molecular biology emphasizing the synthesis, structure, function, and interactions of biological macromolecules.

(F,W,Sp)

**145A-145B-145C. Molecular Biology Laboratory.** Laboratory, twelve hours. Prerequisite: consent of instructor. Highly recommended: course 144. A course in experimental molecular biology in which the student carries out original research under supervision. Space is limited, and arrangements must be made in advance with the instructor.

Mr. Salser (F,W,Sp)

**146. Physicochemical Biology.** Lecture, three hours; discussion, one hour. Prerequisites: courses 5 and 7, or consent of instructor, and Physics 6C or equivalent. A physicochemical analysis of the physiology of cells and organelles, with emphasis on membranes, thermodynamics of solute and water movement, light absorption, and subcellular energy transduction.

Mr. Nobel (F)

**147. Biological Oceanography.** Lecture, five hours; laboratory, fifteen hours (five-week intensive course). Prerequisite: completion of "Preparation for the Major" or consent of instructor. Lectures include physical, chemical, and biological factors affecting the composition and distribution of plankton. Natural history of major phytoplankton and zooplankton taxa; production in marine food chains; adaptation to pelagic habitats. Laboratory includes systematics, morphology of major plankton taxa; experimental studies of local marine plankton, with emphasis on measurement of feeding, primary and secondary productivity, and nutrient flux. Course is given at the *Catalina Marine Science Center*.

Mr. Muscatine

**148. Biology of Marine Plants.** Lecture, five hours; laboratory, fifteen hours (five-week intensive course). Prerequisite: completion of "Preparation for the Major" or consent of instructor. An introduction to the general biology of marine algae, including basics of structure reproduction, life histories, systematics, and an introduction to the physiology and ecology of marine algae. Techniques in culture and laboratory investigation and utilization of algae. Course is given at the *Catalina Marine Science Center*.

Mr. Chapman

**149. Plant Biochemistry and Photosynthesis.** Prerequisite: completion of "Preparation for the Major." A survey course emphasizing plant-specific biochemistry, including photosynthesis; nitrogen fixation and metabolism; sulfur metabolism; respiration; plant pigments, lipids, proteins, and nucleic acids; the cell wall; terpenes; alkaloids and flavonoids.

Mr. Thornber

**152. Functional Plant Anatomy.** Lecture, three hours; laboratory, six hours. Prerequisites: courses 5 and 7, or equivalent, or consent of instructor. The structure and functional significance of the various cell and tissue types in higher plants, plus the patterns of growth and differentiation in roots, stems, leaves, flowers, and fruits.

Mr. D. Walker

**153. Functional Histology.** Lecture, three hours; laboratory, four hours. Prerequisite: completion of "Preparation for the Major." Correspondence of function and structure in vertebrate organs and tissues at cellular and subcellular levels.

Mr. Cascarano, Mr. James (Sp)

**154. Functional Ultrastructure of Cells and Tissues.** Lecture, three hours; discussion, one hour. Prerequisites: course 5 or 7, Chemistry 21, 23, 25, or equivalent. Basic life processes at the supramolecular and molecular levels of cells. Functional significance of membrane structure, molecular basis of absorption, secretion, and muscle contraction. Conventional and advanced methods in ultrastructural analysis, electron microscopy. Interpretations of structural information.

Mr. Sjostrand

**155. Analytical Microscopy and Cytology.** Lecture, three hours; laboratory, three hours. Prerequisites: Physics 3A, 3B, and 3C, or 6A, 6B, and 6C, or equivalent, or consent of instructor. Designed for students in the biological sciences to acquaint them with quantitative cytology, with emphasis on bright field, dark field, phase contrast, interference, polarization analysis, fluorescence microscopy, and epi-illumination.

Mr. James

**CM156. Human Genetics.** (Formerly numbered M134.) (Same as Biomathematics CM156.) Lecture, three hours; discussion, one hour. Prerequisites: course 8, Chemistry 25. The application of genetic principles in human populations, with emphasis on cytogenetics, biochemical genetics, population genetics, and family studies. Lectures and readings in the literature focus on current questions in the fields of medical and human genetics and the methodologies appropriate to answer such questions. Concurrently scheduled with course CM256.

Mr. Merriam, Ms. Spence (W)

**157. Gene Manipulation: Genetic Engineering.** Lecture, three hours; discussion, two hours. Prerequisite: course 138 or 144 or consent of instructor. A survey of the methods and applications of recombinant DNA research as applied to both basic scientific research and the biotechnology industry.

Mr. Salser

**158. Cell Biology (6 units).** Lecture, three hours; laboratory, six hours. Prerequisite: completion of "Preparation for the Major." The cell biology of eukaryotic cells, with emphasis on the correlation of structure and function at the molecular, organelle, and cellular levels.

Mr. Cascarano, Mr. James, Mr. Simpson

**162. Plant Physiology.** Lecture, three hours; laboratory, three hours. Prerequisites: courses 5, 7, Chemistry 25. Hormonal control of growth and development. Photomorphogenesis. Photoperiodism, bio-rhythms, and flowering. Water movement within the plant body and between the plant and its environment. Salt uptake and transport. Photochemical and physiological aspects of photosynthesis. Aspects of plant cell metabolism. The nitrogen cycle.

Mr. Laties (F)

**163. Plant Physiology Laboratory.** Lecture, one hour; discussion, one hour; laboratory, eight hours. Prerequisite: course 162. Limited enrollment. Students are introduced to the instrumentation used in plant physiology research by performing experiments based on the lecture material in course 162. Subsequently, students working singly or in groups undertake a research project of their own design.

**164. Field Biology of Marine Fishes.** Lecture, five hours; laboratory, fifteen hours (five-week intensive course). Prerequisite: completion of "Preparation for the Major" or consent of instructor. Selected aspects of the natural history, ecology, and behavior of the diverse assemblage of local marine fishes. Fieldwork is strongly emphasized. Course is given at the *Catalina Marine Science Center*.

Mr. Buth

**165. Ecological Physiology of Marine Vertebrates.** Lecture, five hours; laboratory, fifteen hours (five-week intensive course). Prerequisite: completion of "Preparation for the Major" or consent of instructor. Introduction to the physiological adaptations of marine vertebrates to the major physicochemical variables in the oceans of the world and to the major marine habitats. Laboratory work emphasizes marine vertebrates of Southern California waters. Course is given at the *Catalina Marine Science Center*.

Mr. Gordon

**166. Animal Physiology (6 units).** Lecture, three hours; laboratory, five hours. Prerequisite: completion of "Preparation for the Major." Students with credit for course 167 will not receive credit for this course. An introduction to physiological principles, with emphasis on organ systems and intact organisms.

**167. Regulatory Physiology (6 units).** Lecture, three hours; laboratory, five hours. Prerequisites: courses 5L, 6, 7. Students with credit for course 166 will not receive credit for this course. An introduction to whole animal and organ physiology. Primary considerations are given to neuronal and endocrine regulations of body functions and integration of organ systems.

Mr. Engelmann

**168. Insect Physiology.** Lecture, two hours; laboratory, six hours. Prerequisite: course 158 or 166 or 167 or equivalent. Survey of the physiology of insects, with emphasis on functional adaptations.

Mr. Engelmann

**169. Comparative Physiology.** Lecture, three hours; laboratory, four hours. Prerequisites: courses 158, 166. A detailed analysis of selected aspects of invertebrate and vertebrate physiology.

Mr. Gordon

**171. Principles of Neurobiology.** Lecture, three hours; discussion, one hour. Prerequisite: course 166 or consent of instructor. An introduction to basic principles of neurobiology, including a description of the structure of neurons and nervous systems; the ionic mechanisms responsible for generating membrane potentials, action potentials, and synaptic potentials; the properties of synaptic transmission, the information transduction and coding in sensory pathways, and the neural control of movement; development of and trophic interactions between cells of the nervous system.

Mr. Eckert, Mr. O'Laque

**172A-172B. Introductory Laboratory in Neurophysiology.** Laboratory, eight hours. Prerequisite: course 171 or consent of instructor. Limited enrollment. Courses must be taken concurrently. Laboratory investigation of the function of central and peripheral nervous systems in invertebrates and vertebrates. Emphasis on electrophysiological approaches to basic neurophysiological problems.

Mr. Eckert, Mr. O'Laque

**173. Anatomy and Physiology of Sense Organs.** Lecture, three hours; discussion, one hour. Prerequisite: course 171 or equivalent. The anatomy and physiology of the sense organs. Comparative aspects are emphasized.

Mr. Narins

**177. Introductory General Endocrinology.** Lecture, three hours; discussion, one hour. Prerequisites: course 158 or 166 or equivalent and one course in biochemistry. Principles of chemical integration in biological systems.

Ms. Szego

**179. Invertebrate Endocrinology.** Lecture, three hours. Prerequisite: course 158 or 166 or consent of instructor. A comprehensive treatment of invertebrate endocrinology.

Mr. Engelmann

**180. Advanced Topics in General Endocrinology.** Lecture, three hours; discussion, one hour. Prerequisite: course 177 or consent of instructor. Detailed consideration of selected mechanisms in endocrine control of growth and differentiation.

Ms. Szego

**181. Parasitology and Symbiosis (6 units).** Lecture, three hours; laboratory, six hours. Prerequisites: courses 5, 7. An introduction to the principles, biology, and evolution of infectiousness, symbiosis, and parasitism, emphasizing protozoan and helminth parasites, including those of man.

Mr. MacInnis

**182. Experimental Parasitology.** Laboratory, eight hours. Prerequisite: consent of instructor. Introduction to the use of parasites in experiments concerning basic biological problems and to problems concerning parasitism.

Mr. MacInnis

**M185. Immunology.** (Same as Microbiology M185 and Microbiology and Immunology M185.) Lecture, three hours; discussion, one hour. Prerequisites: course 8, Chemistry 23, 25. Recommended corequisite: Chemistry 152 or 156. Introduction to experimental immunobiology and immunochemistry; cellular and molecular aspects of humoral and cell immune reactions.

Mr. Clark, Mr. Sercarz (F)

**M186. Experimental Design in Immunology.** (Same as Microbiology M186 and Microbiology and Immunology M186.) Laboratory, twelve hours. Prerequisites: course M185, consent of instructor. Corequisite: course M187. The course focuses on a limited number of situations designed to train the student in organizing and evaluating immunological laboratory experiments.

Mr. Clark, Mr. Sercarz (W)

**M187. Immunology Seminar (2 units).** (Same as Microbiology M187 and Microbiology and Immunology M187.) Prerequisites: course M185, consent of instructor. Corequisite: course M186. Student presentation of selected papers from the immunology literature. Designed to serve as a forum for the critical analysis of research papers.

Mr. Clark, Mr. Sercarz (W)

**188. Seminar on 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.

Mr. Gordon, Ms. Tobin

**190A-190D. Honors Research in Biology (2 to 4 units each).** Prerequisites: senior standing and consent of undergraduate adviser. Individual research designed to broaden and deepen the student's knowledge of some phase of biology. Must be taken for at least two quarters and for a total of at least eight units. In Progress grading (credit to be given only upon 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 the undergraduate adviser each quarter a 190 course is taken. A maximum of eight units may be applied toward the B.S. degree requirements.

(F,W,Sp)

**199. Special Studies (2 to 16 units).** Prerequisite: consent of instructor and undergraduate adviser, based on a written proposal outlining the study or research to be undertaken. The proposal should be worked out in consultation with the instructor and submitted for approval to the undergraduate adviser before the day instruction begins in that quarter. At the end of the quarter a report describing the progress of the study or research and signed by the student and the instructor must be presented to the undergraduate adviser. Students who wish to take more than eight units of course 199 in any one quarter must obtain authorization from the department Chair and the appropriate dean. Only one 199 course may be applied toward the B.S. degree requirements.

(F,W,Sp)

## Graduate Courses

Consent of instructor is required for admission to all graduate courses. Additional prerequisites are stated in the course descriptions.

**201. Topics in Organismal Plant Biology.** Lecture, three hours; laboratory, three hours. The course covers topics in organismic plant biology, including plant cell and tissue characteristics, plant growth and development, transport of solutes, gas exchange, environmental physiology, and the biology of phytohormones.

Mr. Phinney, Mr. D. Walker

**202. Principles of Systematics and Taxonomy.** Lecture, three hours; discussion, two hours. Prerequisite: course 120. The concepts, principles, and methods involved in the inference of evolutionary relationships and the application of biological nomenclature. Mr. Buth

**203. Marine Botany and Physiology (8 units).** Lecture/laboratory. Structure, reproduction, life histories, systematics, and biology of marine algae; techniques in culture and cytological investigation of algal material. Course is given at the *Catalina Marine Science Center*.

**204A. Advanced Algae.** A consideration of current research in experimental phycology. Topics include a discussion of the appropriate aspects of chemical and physical oceanography and limnology; algal physiology; experimental ecology of benthic and planktonic algae. Mr. Chapman

**204B. Advanced Algae.** Lecture, three hours; laboratory, six hours. A course designed to introduce students to current concepts in algal systematics. The laboratory section is designed to teach students, by practical application to unknowns, how to identify algae by appropriate application of keys. Mr. Chapman

**205. Marine Invertebrate Biology (8 units).** Functional morphology, life histories, and systematics of marine invertebrates of all major and most minor taxa; emphasis on the living animal and its habitat. Course is given at the *Catalina 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. Mr. Buth

**207. Molecular and Cellular Biophysics.** Lecture, three hours. Prerequisites: Chemistry 25 and 110A, Mathematics 32A or equivalent, and Physics 6C, or consent of instructor. Strongly recommended: Chemistry 110B or 156. The course first develops areas of physics, including thermodynamics, diffusion, statistical mechanics, and molecular forces. This material is then applied to areas of molecular and cellular biology, including macromolecule characterization, enzyme catalysis, assembly of biological structures, membrane properties, active transport, electrophysiology, and energy transduction. Biological applications of probability, statistics, and fluctuations are also discussed. Mr. Jackson

**208. Advanced Vertebrate Morphology.** Lecture, two hours; laboratory, eight hours. Prerequisites: course 110 or equivalent and consent of instructor. Emphasizes a functional approach to evolution of the vertebrate locomotor, feeding, and circulatory systems. Laboratory includes comparative and experimental analyses of morphological adaptation. An independent project is required. May be repeated once for credit.

**210. Advanced Ornithology.** Lecture, two hours; laboratory, two hours; fieldwork, two hours. Prerequisites: course 114 or equivalent and consent of instructor. Advanced study of topics in avian biology, including systematics, distribution, behavior, and ecology. Students carry out individual study projects in laboratory, museum, or field. Mr. Howell

**211. Animal Sociology.** Lecture, two hours; discussion, two hours. Prerequisite: course 129 or equivalent. The description, analysis, physiology, ecology, and evolution of different social systems in animals. Mr. Collias

**213. Community Ecology (2 units).** Lecture, three hours. Prerequisites: course 122 or equivalent, one year of calculus. Investigation of the structure and function of animal communities, in theory and in practice (includes the concepts of coexistence, competition, niche, and diversity). Mr. Cody

**C214. Ecological Physiology (2 units).** (Formerly numbered 214.) A consideration of the ecologically relevant aspects of animal physiology. Concurrently scheduled with course C134. Mr. Bartholomew, Mr. Nagy

**215. Theoretical Population Biology.** Lecture, three hours. Prerequisites: courses 6 and 8 and Mathematics 3C or 32A, or consent of instructor. Not open to students with credit for course 119. The use of mathematical models in studying ecological and evolutionary systems. Relevant mathematical techniques discussed include basic calculus, differential equations, linear algebra, and probability. Mr. Taylor, Mr. Vance

**217. Marine Ecology (8 units).** Structure, diversity, and energetics of marine communities; behavior, population dynamics, and biogeography of component species; associated oceanography and geology. Course is given at the *Catalina Marine Science Center*. Mr. Vance

**218. Oceanology (8 units).** 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. Course is given at the *Catalina Marine Science Center*.

**219. Animal Behavior in Laboratory and Field.** Discussion, two hours; laboratory, six to eight hours. Prerequisites: course 129 and consent of instructor. Limited enrollment. Laboratory and field studies of selected problems in animal behavior. Mr. Collias

**M220. Multigene Families.** (Same as Anatomy M213.) Lecture, two hours; discussion, two hours. Prerequisites: comparative genetics and course 144 or equivalent and consent of instructor. Analysis of the molecular structure, developmental regulation, and evolution of multigene families. Topics include the hemoglobins, immunoglobulins, histones, ribosomal RNAs, satellite DNAs, and histocompatibility antigens. S/U or letter grading. Mr. Campbell, Mr. Tobin (W)

**221. Genetic Analysis.** Lecture/discussion, three hours. Prerequisite: course 8 or equivalent. Examples of genetic analysis in eukaryotic organisms by means of mutation and chromosome changes. Readings in the literature are provided. Topics include *Drosophila* chromosome behavior, techniques of gene localization, the one gene-one chromomere hypothesis, meiotic mutants, mosaic animals and cell lineage, behavior, and X chromosome inactivation. Mr. Merriam

**222A-222F. Topics in Genetics.** Prerequisite: course 8. Intensive study of selected topics.

**223A-223B. Advanced Genetics Laboratories.** Laboratory, nine hours. Prerequisites: course 8 or equivalent and consent of instructor. Original research with supervision in eukaryotic genetics. Topics include transmission, developmental and behavioral genetics. May not be repeated for credit. Mr. Merriam, Mr. Siegel

**224. Developmental Biology of Marine Organisms (8 units).** Descriptive and experimental studies of developmental stages of marine plants and animals; patterns of reproductive biology; larval biology; metamorphosis. Course is given at the *Catalina Marine Science Center*.

**225. Special Topics in Development.** Lecture, three hours. Variable topics emphasizing the control of eukaryotic gene expression and morphogenesis. Special attention to the role of hormones in the modulation of gene expression during development. Mr. O'Connor

**227. Chromosome Structure and Replication.** Lecture, three hours. Prerequisite: course 8, Chemistry 157A, 157B, or consent of instructor. A survey of biochemical and biophysical investigations of the structure and replication of chromosomal nucleic acids, with emphasis on bacterial and viral systems. Mr. Ray

**228. Prokaryotic and Eukaryotic Gene Systems (2 units).** Presentations concerning current experimental approaches in the study of DNA replication, organization, transcription, and translation. Mr. Grunstein, Mr. Ray

**229. Structural Macromolecules.** Lecture, three hours; discussion, one hour. The comprehensive molecular biology of selected structural proteins and polysaccharides, including cellular synthesis, structure and physical properties, and integrated biological functions. Mr. Fessler

**M230A. Structural Molecular Biology (2 units).** (Same as Chemistry M230A and Microbiology M230A.) Lecture, two hours; discussion, one hour. Prerequisite: consent of instructor based on a written research proposal. Fundamentals of electron microscopy of macromolecules and supramolecular structures, emphasizing quantitative microscopy, high resolution techniques, nucleic acid analysis, and studies on viruses and protein crystals. Mr. Eiserling, Ms. Kasamatsu, Mr. Lake (F)

**M230B. Structural Molecular Biology (2 units).** (Same as Chemistry M230B.) Lecture, two hours; discussion, one hour. Prerequisites: Physics 6C, Mathematics 3C, and consent of instructor. Selected topics from the 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. Mr. Eiserling, Mr. Lake (W)

**M230C. Structural Molecular Biology Laboratory.** (Same as Chemistry M230C and Microbiology M230C.) Laboratory, ten hours. Prerequisite: consent of instructor based on a written research proposal. Practical experience with electron microscopy of macromolecules and supramolecular structures, emphasizing quantitative microscopy, high resolution techniques, nucleic acid analysis, and studies on viruses and protein crystals. Mr. Eiserling, Ms. Kasamatsu, Mr. Lake (F)

**M230D. Structural Molecular Biology Laboratory (2 units).** (Same as Chemistry M230D.) Laboratory, ten 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. Mr. Eiserling, Mr. Lake (W)

**231. Advanced Topics in Molecular Biology.** Lecture, three hours; discussion, one hour. Advanced study of current topics in molecular biology through lectures, discussion, and presentations by students. Mr. Brunk

**232. Experimental Molecular Developmental Biology (8 units).** Lecture, one hour; discussion, two hours; laboratory, twelve hours. Prerequisites: courses 138, 144, and/or consent of instructor. A laboratory course in the biochemical expression and regulation of differentiation in eukaryotes. Mr. Fessler, Ms. Lengyel, Mr. Tobin

**233A-233B. Electron Microscopy of Cells (8 units each).** Lecture, four hours; laboratory, twenty hours; demonstration, three hours. Electron microscopic techniques applied to structure of cells and to molecular structure of cellular components. Intensive training in electron microscopy techniques and in the use of the electron microscope for high resolution electron microscopy. Mr. Sjostrand

**234A. Advanced Topics in Developmental Biology.** (Formerly numbered 234.) Especially intended for first- and second-year graduate students as an overview of research questions on developmental biology available within the Biology Department and of the significant new advances in the discipline. Fundamental questions in developmental biology are approached with examples from current literature. Topics include differential gene activity, gene localization, maternal effect and homeotic mutations, the determined cell state, cell identification, hormone receptors and hormone-mediated responses, and developmental neurobiology, and emphasize the analysis of genes implicated in development. Students are strongly encouraged to take both courses 234A and 234B, since these represent a survey of modern biology as appropriate preparation for graduate study. S/U or letter grading.

**234B. Advanced Topics in Cell Biology.** Lecture, two hours; discussion, two hours. Especially intended for first- and second-year graduate students as an overview of research questions on cell biology available within the Biology Department and of the significant new advances within the discipline. Fundamental questions in cell biology are approached with examples from current literature.

**236. Experimental Cell Biology.** Lecture, two hours; discussion, one hour; laboratory, four hours. Prerequisites: course 158 and consent of instructor. Theoretical and experimental analysis of systems utilized in the study of cellular metabolism and physiology; cell organelles, cell populations, and organized tissues. Mr. Cascarano, Mr. James

**M237. Steroid Hormones (2 units).** (Same as Biological Chemistry M237.) Highly recommended prerequisites: prior courses in biochemistry and cell biology. Detailed examination of the mode of action of steroid hormones on both *in vivo* and *in vitro* systems. Topics include steroid uptake, receptor purification and activation, and nuclear events, among others. Mr. O'Connor

**238. Structure, Function, and Biogenesis of the Mitochondrion.** Lecture, three hours. Prerequisites: course 158, consent of instructor. Origin, maintenance, and function of the mitochondrion as an example of a highly organized subcellular organelle in the eukaryotic cell. Mr. Simpson

**M239. Techniques in Nucleic Acid Research (2 units).** (Same as Microbiology M239.) Highly recommended corequisite: course M239L. Advanced methods in characterization of genes, including sequence determination. Isolation of nucleic acids by centrifugation, chromatography, and electrophoresis, and characterization by restriction mapping and blot hybridization. Cloning in bacterial and plasmid vectors, sequence determination by the dideoxy technique, computer analysis of sequences. Mr. Nierlich, Mr. Simpson (Sp)

**M239L. Laboratory in Nucleic Acid Research (6 units).** (Formerly numbered M239.) (Same as Microbiology M239L.) Laboratory, twelve hours. Corequisite: course M239. Laboratory in advanced methods in characterization of genes, including sequence determination. Isolation of nucleic acids by centrifugation, chromatography, and electrophoresis, and characterization by restriction mapping and blot hybridization. Cloning in bacterial and plasmid vectors, sequence determination by the dideoxy technique, computer analysis of sequences. Mr. Nierlich, Mr. Simpson (Sp)

**240. Physiology of Marine Animals (8 units).** Lecture and laboratory studies on cellular, tissue, organ, and animal physiology; regulatory biology; metabolic characteristics of cells, energy transformations. Course is given at the Catalina Marine Science Center.

**241. Laboratory in Advanced Electrophysiology (8 units).** Laboratory, twelve hours. Prerequisites: courses 172A-172B or equivalent and consent of instructor. In-depth involvement in individual research projects under staff guidance. Approximately two projects each quarter. May be repeated twice for credit. Mr. Eckert, Mr. O'Lague

**242. Topics in Neurobiology.** Lecture, three hours. Prerequisites: course 171 or equivalent and consent of instructor. Selected current problems in neurobiology are discussed in depth, with emphasis on analysis of original papers. May be repeated for credit. Mr. Eckert, Mr. O'Lague

**243. Animal Communication.** Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 3C, Physics 6C, and consent of instructor. Open to qualified undergraduates by consent of instructor. Physical properties of animal signals and the physiological mechanisms underlying their generation and reception are considered. Lectures treat signal analysis, signal transmission, and receptor design in light of the constraints placed on each of the sensory modalities. Examples of communication systems using visual, auditory, chemical, electrical, and magnetic cues are discussed, with emphasis on biological adaptations for efficiently signaling species-specific information. Mr. Narins

**244. Advanced Insect Physiology.** Lecture, two hours; laboratory, five hours. Prerequisite: course 168 or consent of instructor. A detailed discussion of current problems in insect physiology, with advanced laboratory. Mr. Engelmann

**245. Advanced Topics in Cell Biology (2 units).** Seminar, one hour; discussion, one hour. Prerequisite: course 138 or 158 or equivalent. Course includes a seminar section on a current topic in cell biology and a discussion section on the seminar topic. Students prepare one such seminar each quarter, using the reading list provided as background, and choose a topic with the aid of current literature and consent of instructor. May be repeated for credit. S/U grading. Ms. Bulinski

**247. Advanced Plant Biology.** (Formerly numbered 247A-247F.) Lecture, three hours; discussion, two hours. Prerequisite: course 141 or 162 or equivalent. Open to undergraduates by 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.

**M248. Molecular Genetics.** (Same as Biological Chemistry M248.) Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. Basic concepts in modern genetics are presented, drawing examples from both eukaryotic and prokaryotic systems. Emphasis on the use of genetic techniques for addressing fundamental questions in biochemistry and molecular biology. Topics include mutagenesis, mutant selection, recombination, genetic mapping, complementation, transposable elements, gene organization, genetic regulation, and molecular evolution. Ms. Calame, Mr. McEntee, Mr. Miller, Mr. Shapiro (W)

**249. Biochemistry of Parasitism.** Lecture, three hours. Biochemical and physiological aspects of parasite-host relationships. Mr. MacLennan

**M250A. Advanced Immunology (3 units).** (Same as Microbiology M258A and Microbiology and Immunology M258A.) Lecture, 90 minutes; discussion, 90 minutes. Prerequisite: course M185 or Microbiology and Immunology 202A or equivalent or consent of instructor. The course is designed to provide continuity between the basic immunology courses and the original research literature. The major aspects of the immune system are intensively examined, with emphasis on fundamental principles and on advances of the past five years. Featured are lectures dealing with the development of B and T lymphocytes, the interaction of these two lymphocyte subpopulations in the production of immunoglobulin, and cell-mediated immunity. S/U or letter grading. (W)

**M250B. Advanced Immunology (3 units).** (Same as Microbiology M258B and Microbiology and Immunology M258B.) Lecture, 90 minutes; discussion, 90 minutes. Prerequisites: course M185 or Microbiology and Immunology 202A, or equivalent, and course M250A, or consent of instructor. A continuation of course M250A which considers the fields of immunochimistry, surface membrane receptors, and lymphokines. S/U or letter grading. (Sp)

**251. Seminar in Systematics (2 units).** Mr. Buth, Mr. Gibson

**M252A-M252B. Seminar in Behavioral Biology.** (Same as Anthropology M228A-M228B, Education M229A-M229B, Physiology M252A-M252B, Psychiatry M291A-M291B, and Psychology M230A-M230B.) Discussion, six hours. Prerequisite: consent of instructor. Basic seminar for graduates interested in behavioral biology. An interdisciplinary course dealing with behavioral research in anthropology, biology, psychology, and the medical sciences. Proximate causation, development, and evolution in animal behavior. Physiology and the organization of behavior. Vertebrate social organization. Animal communication. The application of natural selection theory to human social behavior. In Progress grading.

**253. Seminar in Plant Structure (2 units).** Mr. Phinney, Mr. D. Walker

**254. Seminar in Plant Morphogenesis (2 units).** Mr. Phinney, Mr. D. Walker

**255. Seminar in Invertebrate Zoology (2 units).** Mr. Morin, Mr. Muscatine

**CM256. Human Genetics.** (Same as Biomathematics CM256.) Lecture, three hours; discussion, one hour. Prerequisites: course 8, Chemistry 25. The application of genetic principles in human populations, with emphasis on cytogenetics, biochemical genetics, population genetics, and family studies. Lectures and readings in the literature focus on current questions in the fields of medical and human genetics and the methodologies appropriate to answer such questions. Concurrently scheduled with course CM156. Independent research project is required of graduate students. Mr. Merriam, Ms. Spence (W)

**257. Gene Manipulation: Genetic Engineering.** Lecture, three hours; discussion, two hours. Prerequisite: course 138 or 144 or consent of instructor. A survey of the methods and applications of recombinant DNA research as applied to both basic scientific research and the biotechnology industry. Mr. Salser

**257B. Gene Manipulation: Advanced Course (2 units).** Lecture, 90 minutes; discussion, one hour. Prerequisite: course 157 or 257. Additional topics in the methods and applications of recombinant DNA research as applied to both basic scientific research and the biotechnology industry. S/U or letter grading. Mr. Salser

**258. Seminar in Ichthyology.** Discussion, two hours. 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. Mr. Buth

**259. Seminar in Herpetology (2 units).** Discussion, three hours. Prerequisite: course 113 or consent of instructor. Seminar in current approaches to herpetology. Main theme varies from year to year in areas such as biogeography, ecology, behavior, environmental physiology. Mr. Vitt

**260. Seminar in Biology of Terrestrial Vertebrates (2 units).** Mr. Bartholomew, Mr. Howell

**262. Seminar in Vertebrate Paleontology (2 units).** Mr. Vaughn

**263. Seminar in Population Genetics (2 units).** Seminar on topics of current interest in population genetics, such as selectionist/neutralist, sociobiology, kin selection/group selection, speciation, etc. Mr. Taylor

**264. Evolutionary Concepts (2 units).** Lecture, three hours. Exploration in depth of evolutionary concepts, their diversity, biological interpretations, and impact on social and humanistic patterns of today and the past.

**265. Seminar in Biophysical Plant Ecology (2 units).** Mr. Nobel

**266. Seminar in Plant Ecology (2 units).** Mr. Cody, Mr. Thompson

**268. Seminar in Population Biology (2 units).** Mr. Cody

**269. Seminar in Animal Ecology (2 units).** Discussion, three hours. Advanced study of specific topics in animal ecology and related fields.

**270. Seminar in Environmental Physiology (2 units).** Mr. Bartholomew, Mr. Nagy

**271. Seminar in Phycology and Mycology (2 units).** Prerequisites: course 100 or equivalent and 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 in Marine Biology (2 units).** Mr. Gordon, Mr. Morin, Mr. Muscatine

**273. Seminar in Entomology (2 units).** Discussion of specific topics in entomology and related fields. The main theme varies from year to year, but usually emphasizes areas such as behavior, ecology, and evolution. S/U grading. Mr. Greenfield

**274. Seminar in Animal Behavior (2 units).** Mr. Collias

**275. Seminar on Behavior Research Problems.** Lecture, three hours; laboratory, two hours. Prerequisite: course 130. Mr. Kavanau

**276. Seminar in Molecular Genetics (2 units).** Topics vary each quarter. Mr. Salser

**277. Seminar in Genetics (2 units).** Mr. Ebersold, Mr. Merriam, Mr. Siegel

**278. Seminar in Information Processing in Eukaryote Cells (2 units).** Discussion, three hours. Prerequisites: course 8 and Chemistry 157A, 157B, or consent of instructor. Structure and organization of eukaryote DNA; nuclear RNA species; definition and properties of eukaryote mRNA; translation of mRNA; current related topics. Mr. Clark

**279. Seminar in Developmental Biology (2 units).** S/U grading. Mr. Tobin

**280. Seminar on Chromosome Structure and Replication (2 units).** Prerequisite: course 227. Current topics in the field of control and mechanism of DNA replication. Mr. Ray

**281. Seminar in Molecular Biology (2 units).** Mr. Brunk, Mr. Fessler, Mr. Ray

**M282. Major Histocompatibility Complexes: Genetics, Biochemistry, and Biology (2 units).** (Formerly numbered 282.) (Same as Microbiology and Immunology M282.) Lecture, one hour; discussion, one hour. Prerequisites: course M185 or equivalent, genetics, biochemistry. Lectures and discussion of key papers underlying the present concepts of MHC structure and function. Emphasis on the murine MHC (H-2), but where appropriate and illustrative, the human MHC is discussed. Mr. Clark (W)

**283. Seminar on Topics in Cell Biology (2 units).** A discussion of various topics on the 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. Mr. Simpson

**284. Seminar in Structural Macromolecules (2 units).** Lecture, one hour; discussion, three hours. Prerequisites: courses 138, 144, and/or consent of instructor. In-depth analysis of current problems in the biology, biochemistry, and molecular biology of structural macromolecules, involving critical evaluation of recent findings and publications on the biosynthesis, structure, and biodegradation of these molecules. Mr. Fessler

**285. Seminar in Protein Synthesis (2 units).** Discussion, three hours. Prerequisite: course 144 and/or consent of instructor. A detailed analysis of the current understanding of the structural and functional events occurring during protein synthesis. Mr. Lake

**286. Seminar in Plant Development (2 units).** Lecture, one hour; discussion, two hours. Prerequisites: a course in plant physiology, at least one advanced undergraduate or graduate course in plant development or biochemistry, and Chemistry 157A, 157B, or equivalent. Seminar on specific topics in plant development. Content varies each quarter.

**287. Seminar in Comparative Cell Physiology (2 units).** Mr. Phinney, Ms. Tobin

**288. Seminar on Plant Cell Biology (2 units).** Recommended prerequisite: course 162. Mr. Cascarano, Mr. James

**289. Seminar in Plant Physiology (2 units).** Ms. Gonzalez

**290. Seminar in Comparative Physiology (2 units).** Mr. Laties

**291. Seminar in Physiology and Biochemistry of Arthropods (2 units).** Mr. Gordon, Mr. Narins

**292. Seminar on Topics in Ultrastructure (2 units).** Mr. Engelmann

**294. Seminar on Current Aspects of Photosynthesis (2 units).** Mr. Chapman, Mr. O'Laque, Mr. Thornber

**295. Seminar in Neurophysiology (2 units).** Mr. Eckert, Mr. O'Laque

**296. Seminar in Biological Applications of Flow Cytometry (2 units).** Lecture, two hours; demonstration, one hour. Prerequisite: graduate standing or consent of instructor. Initial lecture focuses on instrumentation design and operation. Subsequent lectures present specific biological paradigms whose unresolved questions can best be answered by means of fluorescent flow cytometry. The latter portion of the seminar is topical and varies from year to year. Mr. O'Connor

**297. Seminar in Molecular Endocrinology (2 units).** Ms. Szego

**M298. Seminar in Current Topics in Molecular Biology (2 units).** (Same as Biological Chemistry M298, Chemistry M298, Microbiology M298, Microbiology and Immunology M298, and Molecular Biology M298.) Discussion, one hour. Prerequisite: consent of instructor and graduate adviser of interdepartmental Molecular Biology Ph.D. committee. Each student conducts or participates in discussions on assigned topics. May be repeated for credit.

**299. Seminar in Parasitology (2 units).** Mr. MacInnis

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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 the Teaching of Biology in Higher Education (2 units).** Prerequisites: graduate standing and consent of instructor. Study of problems and methodologies in teaching biology, which includes workshops, seminars, apprentice teaching, and peer observation. S/U grading. Mr. D. Walker

**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. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. S/U grading.

**596. Directed Individual (or Tutorial) Studies (2 to 12 units).**

**596F. Directed Individual (or Tutorial) Studies (2 to 8 units).** Directed individual (or tutorial) studies at the Catalina Marine Science Center.

**597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examination (2 to 12 units).** May not be applied toward the 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).**

## Business and Administration (Interdepartmental)

A316 Murphy Hall, 825-1965

### Additional Coursework for Students Interested in Business and Administration

The Program 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 wish to major in a foreign language to become familiar with the literature and culture of other countries, and then add this program to gain a basic understanding of economics, accounting, and statistics. Other students interested in working for a governmental agency or nonprofit corporation might wish to add this program to a social science major. Students with a particular interest in accounting, banking, and finance are directed to the economics/business concentration within the economics major. Students with an interest in a liberal arts area, who are not planning to go to graduate school, may wish 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 the major, breadth, or general education requirements may also be applied toward the requirements of this program. To enter the program, you must file a petition with the College Counseling Service in the College of Letters and Science by the time you have completed 120 units. All degree requirements, including the specific requirements for this program, must be fulfilled within 208/210 units. When you have successfully completed all program requirements, you will receive a certificate of completion.

For further information regarding the program, consult a counselor in the College of Letters and Science.



# Chemistry and Biochemistry

3010 Young Hall, 825-4219

## Professors

Frank A. L. Anet, Ph.D. (*Organic Chemistry*)  
 Daniel E. Atkinson, Ph.D. (*Biochemistry*)  
 Mario E. Baur, Ph.D. (*Physical Chemistry*)  
 Kyle D. Bayes, Ph.D. (*Physical Chemistry*)  
 Richard B. Bernstein, Ph.D. (*Physical Chemistry*)  
 Paul D. Boyer, Ph.D. (*Biochemistry*)  
 Orville L. Chapman, Ph.D. (*Organic Chemistry*)  
 Donald J. Cram, Ph.D. (*Organic Chemistry*)  
 Richard E. Dickerson, Ph.D. (*Biochemistry and Molecular Biology*)  
 David S. Eisenberg, Ph.D. (*Physical Chemistry and Molecular Biology*)  
 Mostafa A. El-Sayed, Ph.D. (*Physical Chemistry*)  
 Paul S. Farrington, Ph.D. (*Chemistry*)  
 Christopher S. Foote, Ph.D. (*Organic and Biochemistry*)  
 William M. Gelbart, Ph.D. (*Physical Chemistry*)  
 M. Frederick Hawthorne, Ph.D. (*Inorganic and Organometallic Chemistry*)  
 Wayne L. Hubbell, Ph.D. (*Biochemistry and Jules Stein Professor of Ophthalmology*)  
 Michael E. Jung, Ph.D. (*Organic and Biochemistry*)  
 Herbert D. Kaesz, Ph.D. (*Inorganic and Organometallic Chemistry*)  
 Daniel Kivelson, Ph.D. (*Physical Chemistry*)  
 Charles M. Knobler, Ph.D. (*Physical Chemistry*)  
 William G. McMillan, Jr., Ph.D. (*Chemical Physics*)  
 Malcolm F. Nicol, Ph.D. (*Physical Chemistry*)  
 Howard Reiss, Ph.D. (*Physical Chemistry*)  
 Verne N. Schumaker, Ph.D. (*Biochemistry and Molecular Biology*)  
 Robert L. Scott, Ph.D. (*Physical Chemistry*)  
 Roberts A. Smith, Ph.D. (*Biochemistry*)  
 Kenneth N. Trueblood, Ph.D. (*Physical Chemistry*)  
 Joan S. Valentine, Ph.D. (*Inorganic and Biochemistry*)  
 John T. Wasson, Ph.D. (*Geochemistry and Chemistry*)  
 Charles A. West, Ph.D. (*Biochemistry*)  
 Jeffrey I. Zink, Ph.D. (*Inorganic Chemistry*)  
 Francis E. Blacet, Ph.D., D.Sc., *Emeritus*  
 Clifford S. Garner, Ph.D., D.Sc., *Emeritus*  
 E. Russell Hardwick, Ph.D., *Emeritus*  
 Thomas L. Jacobs, Ph.D., *Emeritus*  
 James D. McCullough, Ph.D., *Emeritus*

## Associate Professors

Steven G. Clarke, Ph.D. (*Biochemistry*)  
 Jay D. Gralla, Ph.D. (*Biochemistry*)  
 John M. Jordan, Ph.D. (*Biochemistry*)  
 Harold G. Martinson, Ph.D. (*Biochemistry and Molecular Biology*)  
 Emil Reisler, Ph.D. (*Biochemistry and Molecular Biology*)  
 Charles E. Strouse, Ph.D. (*Inorganic Chemistry*)  
 Richard L. Weiss, Ph.D. (*Biochemistry*)

## Assistant Professors

David Farrelly, Ph.D. (*Theoretical Chemistry*)  
 William H. Hersh, Ph.D. (*Organic and Organometallic Chemistry*)  
 David F. Kelley, Ph.D. (*Physical Chemistry*)  
 Joseph R. Murdoch, Ph.D. (*Organic Chemistry*)  
 Douglas C. Rees, Ph.D. (*Biochemistry*)  
 R. Stanley Williams, Ph.D. (*Physical Chemistry*)

## Lecturers

Sandra I. Lamb, Ph.D. (*Chemistry*)  
 Lawrence H. Levine, 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).

The department offers three undergraduate majors: one in chemistry with an emphasis on inorganic, organic, or physical chemistry, and a second major in biochemistry which requires studies in chemistry, biochemistry, and biology. Both majors are designed to prepare students for graduate studies in the fields of chemistry and biochemistry, 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 third major, in general chemistry, is intended for students who wish to acquire considerable chemical background in preparation for careers outside chemistry.

Graduate research and training programs leading to the M.S. and Ph.D. degrees in Chemistry and in Biochemistry are also offered. There is close cooperation between the Department of Chemistry and Biochemistry in the College of Letters and Science and the Department of Biological Chemistry in the School of Medicine, but students must be formally admitted into the program of one department or the other.

## Undergraduate Study

### Admission

Regular and transfer students who have the prerequisites for the various courses are not thereby assured of admission to those courses. The department may deny admission to any course if a grade of D was received in a prerequisite, or if in the opinion of the department the student shows other evidence of inadequate preparation.

**Transfer students** with more than 84 quarter units will be accepted into the departmental majors only if they have completed the following: *chemistry majors*: Chemistry 11A, 11B/11BL, 11C/11CL (or equivalent), Mathematics 31A, 31B, 32A, 32B (or equivalent), Physics 8A, 8B/8BL, 8C/8CL (or equivalent calculus-

based physics); *biochemistry majors*: Chemistry 11A, 11B/11BL, 11C/11CL (or equivalent), Mathematics 31A, 31B, 32A (or equivalent), one year of physics, preferably calculus-based (a year of biology may replace the physics).

Transfer students with more than 105 quarter units will be accepted into the majors only if they have completed the following: *chemistry majors*: Chemistry 11A, 11B/11BL, 11C/11CL, 21 (or equivalent), Mathematics 31A, 31B, 32A, 32B, Physics 8A, 8B/8BL, 8C/8CL, or equivalent calculus-based physics (a course in biochemistry or two full years of chemistry are strongly recommended); *biochemistry majors*: Chemistry 11A, 11B/11BL, 11C/11CL (or equivalent), Mathematics 31A, 31B, 32A (or equivalent), one year of physics (preferably calculus-based), and one year of biology.

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 21. Transfer students should consult the department's Undergraduate Office for assistance in planning their programs.

You may not repeat a chemistry or biochemistry course if you have credit for a more advanced course which has the first course as a prerequisite.

Courses taken to fulfill any of the requirements for any of the departmental majors must be taken for a letter grade. Seminar courses, individual study courses, and research courses (e.g., 190, 199) may not be applied toward the requirements for the majors.

Each of the major programs is outlined below. Students may contact Dorothy Seymour, Undergraduate Counselor, for help and advice (4016 Young Hall).

## Preliminary Examination for Chemistry 11A

If you wish to enroll in Chemistry 11A or 11AH, you must take the Chemistry/Mathematics Preliminary Examination in Chemistry during the enrollment period for the quarter in which you intend to take these courses. Enrollment usually will be limited to students who have passed the examination. It will be given in 2250 Young Hall on Tuesday, September 25, 1984; Tuesday, November 13, 1984; Wednesday, January 2, 1985; Tuesday, February 19, 1985; Wednesday, March 27, 1985; and Saturday, June 1, 1985.

## Bachelor of Science in Chemistry

For students who intend to pursue a career in chemistry.

### Preparation for the Major

*Required*: Chemistry 11A, 11B/11BL, 11C/11CL, 21, 23; Biochemistry 25; Physics 8A/8AL, 8B/8BL, 8C/8CL (8D/8DL strongly rec-

ommended); Mathematics 31A, 31B, 32A, 32B, 33A. No specific foreign language is required; however, reading knowledge of German (at least at the level of German 3) is strongly recommended if you are planning to pursue graduate work in chemistry.

### The Major

**Required:** Chemistry 110A, 110B, 113A, 114 (or 114H), 133A, 133B, 133C, 173, and two other upper division or graduate courses in the department, including at least one laboratory course from 136, 144, 154, 174, 184.

## Bachelor of Science in Biochemistry

For students preparing for careers in biochemistry or other fields requiring extensive preparation in both chemistry and biology.

### Preparation for the Major

**Required:** Chemistry 11A, 11B/11BL, 11C/11CL, 21, 23; Biochemistry 25; Mathematics 31A, 31B, 32A, 33A; three courses (including laboratory) from Physics 6A\*, 6B, 6C, 8A/8AL, 8B/8BL, 8C/8CL, 8D/8DL; Biology 5, 8, 8L.

\*If physics courses from both the 6 and 8 series are taken, undue duplication must be avoided.

### The Major

**Required:** Chemistry 110A, 133A, 133B, 133C; Biochemistry 154, 156, 157A, 157B; one course from each of the following five categories: (1) Microbiology 101; (2) Biology 138, 141, 153, 154, CM156, or Microbiology C111; (3) Biology 158, 162, 166, 167, or Microbiology 113; (4) one upper division or graduate-level course in biology, chemistry and biochemistry, or microbiology; (5) one upper division or graduate-level course in biology, biological chemistry, chemistry and biochemistry, mathematics, microbiology, or physics. Courses selected to satisfy categories 4 and 5 must be approved by the undergraduate adviser (Biochemistry).

## Bachelor of Science in General Chemistry

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.

### Preparation for the Major

**Required:** Chemistry 11A, 11B/11BL, 11C/11CL, 21, 23; Biochemistry 25; Mathematics 31A, 31B, 32A, 33A; three courses (including laboratory) from Physics 6A\*, 6B, 6C, 8A/8AL, 8B/8BL, 8C/8CL, 8D/8DL.

\*If physics courses from both the 6 and 8 series are taken, undue duplication must be avoided.

To enter the major, you must complete the preparation courses with at least a 2.0 average.

### The Major

**Required:** Six upper division courses in the department, including at least one in physical chemistry and at least two with laboratory work; six additional upper division courses. A 2.0 average is required in all upper division courses in the department. The program should be coherent in terms of your interests and objectives and must be based on a written proposal and approved by the undergraduate adviser (Chemistry).

## Graduate Study

The department offers programs of study and research leading to the M.S. and Ph.D. degrees in both Chemistry and Biochemistry. Candidates for advanced degrees may specialize in the following fields: biochemistry, inorganic, organic, or physical chemistry.

If you are planning to work toward the Ph.D., you 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 Phyllis Jergenson, Graduate Office, Department of Chemistry and Biochemistry, UCLA, Los Angeles, CA 90024.

### Admission

An excellent undergraduate record is required in addition to the University minimum requirements. Graduate Record Examination (GRE) Aptitude and Advanced Tests are recommended.

Each student admitted to graduate standing is given orientation examinations at the beginning of the first quarter in physical, organic, analytical, and inorganic chemistry or biochemistry. The main purpose of the orientation requirement is to help you and your adviser plan your course program. The examinations include material covered in upper division courses in physical, organic, and inorganic chemistry and biochemistry. All courses suggested because of deficiencies in undergraduate preparation are normally to be completed by the end of the first year.

You are encouraged to become familiar with research activities of all faculty in your area of interest and to join a research group as soon as possible. Biochemistry students will rotate through at least two research groups during the Fall and Winter Quarters, with a final selection made during the Spring Quarter.

### Foreign Language Requirement

Language requirements for the different areas of specialization are as follows: *biochemistry* — none; *organic* — German; *physical* — German or French or, with consent of the research director, a substitute coordinated course in

computer programming; *inorganic* — German or a coordinated course in computer programming. (A foreign student in the M.S. program may use English as the required foreign language.) Either the ETS examination (with a score of 500) or the departmental examination is acceptable. The substitute course program should consist of ten units of coordinated upper division or graduate courses forming a minor field of concentration. These courses may be taken on an S/U grading basis but may not be applied toward the departmental requirements.

## Master of Science Degrees

### Course Requirements

**Chemistry M.S.:** At least nine courses (36 units) are required, of which at least five (20 units) must be graduate courses and the remainder upper division courses. You must take a minimum of two courses in your major area and one course in an outside area. Choices may be made from the following:

Organic — Chemistry 207, 232, 236, 241A through 241Z, 242, C243A, C243B, 244, 245, 246

Physical — Chemistry C215A, C215B, 215C, 215D, C223A, C223B, 223C, 225

Inorganic — Chemistry 174, 207, C275, C276A, 276B, 277, 279

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 course 596 or 598 may be applied toward the total course requirement; up to 20 units may be applied toward the minimum graduate course requirement.

Plan I (thesis plan) is the preferred method of attaining the M.S. in Chemistry. However, in exceptional cases where Plan II (comprehensive examination plan) is used, an additional six units of course 597 and six units of course 228, 248, or 278 may be applied toward the graduate course requirement and the total course requirement.

**Biochemistry M.S.:** The M.S. in Biochemistry may be obtained by the thesis plan or the comprehensive examination plan. Course requirements vary for each plan, as follows.

**Plan I (Thesis Plan):** A total of 36 units is required. Of these, 20 must be at the graduate level and include a minimum of 12 units from Chemistry M253, M255, M267. Registration in course 268 is required for three quarters but is not applicable to the 36-unit requirement.

Up to 22 units of course 596 or 598 may be applied toward the total course requirement; up to eight units may be applied toward the graduate course requirement.



After completion of course requirements, you should consult your research adviser to form a thesis committee.

**Plan II (Comprehensive Examination Plan):** A total of 36 units is required. Of these, 20 must be at the graduate level and include a minimum of 12 units from Chemistry M253, M255, M267. You may apply six units of course 268 and six units of course 597 to the graduate course requirement and the total course requirement. With the exception of Chemistry 268 and 597, all courses must be taken on a letter grade basis.

## Ph.D. Degrees

### Course Requirements

**Chemistry Ph.D.:** 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 your projected research falls in an area which differs appreciably from that anticipated by the field requirements listed below, you may be permitted appropriate modifications. Required coursework must be completed prior to advancement to candidacy.

#### *Inorganic Chemistry*

(1) Required background material: Chemistry 173; (2) two courses from C276A, 276B, 277; (3) two courses from 174, 207, C275, 279; (4) two courses from physical chemistry (C213B, C215A, C215B, 215D, C223A) or organic chemistry (232, 241A through 241Z, 242, C243A, C243B, 244, 245, 246) or biochemistry (157A); (5) three courses from 207, 271A through 271Z, C275, C276A; (6) Chemistry 278.

#### *Organic Chemistry*

(1) Required background material: Chemistry 133A, 133B, 133C, 136, 144; (2) Chemistry C243A, C243B; (3) one course from C213B, 245, C276A; (4) one additional course from physical chemistry (C215A, 221A through 221Z, C223A) or inorganic chemistry (173, 174, C275, C276A) or biochemistry (157A, 157B); (5) two courses from 207, 232, 236, 241A through 241Z, 242, 244, 245, 246; (6) Chemistry 248.

#### *Physical Chemistry*

(1) Required background material: Chemistry 110A, 110B, 113A; (2) Chemistry C215A, C215B, C223A, C223B; (3) two courses from 215C, 215D, 221A through 221F, 223C, 225, Physics 131, 132 (or approved substitutions); (4) two additional courses from upper division or graduate offerings in chemistry or physics; (5) Chemistry 218.

**Biochemistry Ph.D.:** Candidates should normally complete as a minimum the coursework indicated below. Some of these requirements can be met on the basis of orientation exami-

nations and courses taken prior to entry into the graduate program. Required coursework must be completed prior to advancement to candidacy.

(1) Required background material: Chemistry 110A, 133A, 133B, 133C, 156, 157A, 157B, some coursework in the life sciences, and some biochemistry laboratory experience. Deficiencies in background may be made up after admission.

(2) Core courses M253, M255, M267 (18 units).

(3) An additional 12 units of upper division or graduate courses subject to the consent of the graduate adviser. It is recommended that eight of these units be from other than biochemistry offerings. Advanced courses taken elsewhere or as an undergraduate may be substituted for some of these units in appropriate cases. Seminar courses will normally not be applicable.

(4) Chemistry 258 for three quarters.

### Teaching Experience

One year of teaching experience is required.

### Qualifying Examinations

Rather than a single comprehensive examination, the department gives all 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. If you enter directly into the Ph.D. program and perform satisfactorily on the orientation examination in your special area, you may begin writing the examinations immediately. You must begin by the start of your second quarter in residence and must continue until you have passed five. To remain in good standing, you should pass at least one of the first six examinations attempted and three out of nine. Fifteen attempts will normally be the maximum.

At the end of the first and second year, your overall progress will be evaluated by the graduate study committee, taking into account performance in courses, cumulative examinations, and research. The committee may recommend that you (1) proceed to the oral examination, (2) be placed on probationary status for one quarter, during which time you will continue to take cumulative examinations with a final determination made at the end of this period, (3) be disqualified from the Ph.D. program, or (4) be terminated.

The University Oral Qualifying Examination is based on your research proposal which should represent independent work and should offer the doctoral committee an opportunity to judge your ability to think creatively and to formulate

significant ideas for research. The examination is to be attempted by the end of the seventh quarter (sixth quarter for biochemistry). 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 you to candidacy, to allow you to repeat the oral, or to disqualify you will be based on the quality of the written proposal, the adequacy of the oral presentation, your overall record at UCLA as reflected in coursework and examinations, and your research ability.

When a satisfactory report on the completion of the written and oral qualifying examinations, course requirements, and the departmental language requirement has been submitted, you will be eligible for formal advancement to candidacy for the Ph.D.

### Final Oral Examination

The final oral examination is optional with the doctoral committee.

### Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Lower Division Courses

**A. Introduction to Chemical Problem Solving (No credit).** Lecture, two hours; discussion/laboratory, two hours. Chemistry A displaces four units on the student's Study List but yields no credit toward a degree. Prerequisite: either Mathematics 1A (grade of B or better) or 1B (grade of C or better) or two years of high school mathematics (grades of B or better) or three years of high school mathematics (grades of C or better). May be limited to students who have taken the Chemistry/Mathematics Preliminary Examination. An introduction to concepts and problem solving techniques required for the study of general chemistry, including elementary aspects of the atomic picture of matter (nomenclature, atomic structure, periodic table); logarithms, exponential notation, functions and word problems arising in chemical applications. This is not an introductory course in general chemistry. P/NP grading.

**2. Introductory Chemistry.** Not open to students with credit for course 11A. Designed to meet part of the Letters and Science requirements for nonscience majors and similar requirements in other colleges. The course deals with the concept of the microscopic world of chemistry and ranges from protons to proteins in subject matter. Refer to "Requirements for the Bachelor's Degree" at the beginning of this chapter for other credit limitations on this course.

Mr. Farrington, Mr. Hardwick (F,W,Sp)

**11A. General Chemistry.** Lecture, four hours; discussion, one hour. Prerequisites: high school chemistry or equivalent background and three and one-half years of high school mathematics. Recommended: high school physics. Required of all majors in chemistry and biochemistry. (Students lacking the prerequisites may qualify for admission by exceptional performance on the Chemistry/Mathematics Preliminary Examination.) All students who intend to take this course must take the Chemistry/Mathematics Preliminary Examination (enrollment is usually limited to students who have passed the examination). Atomic theory and stoichiometry; states of matter and phase equilibrium; gases; liquids and solutions; acids, bases, and salts; equilibria in gases and solutions; solubility and solubility equilibria; oxidation and reduction.

Mr. Baur, Mr. Hardwick, Mr. Trueblood (F,W,Sp)

**11AH. General Chemistry (Honors).** Lecture, four hours; discussion, one hour. Prerequisites: high school chemistry or equivalent background and three and one-half years of high school mathematics. Recommended: high school physics. (Students lacking the prerequisites may qualify for admission by exceptional performance on the Chemistry/Mathematics Preliminary Examination.) All students who intend to take this course must take the Chemistry/Mathematics Preliminary Examination (enrollment is usually limited to students who have passed the examination). An honors course parallel to course 11A.

Mr. El-Sayed, Mr. Gelbart (F)

**11B. General Chemistry.** Lecture, three hours; discussion, one hour. Prerequisite: course 11A or 11AH with a grade of C- or better or consent of instructor. Thermochemistry and thermodynamics; electrochemistry; chemical kinetics; quantum theory and electronic structure of atoms; periodicity of chemical properties.

Mr. Kaesz, Mr. Nicol, Mr. Williams (F,W,Sp)

**11BH. General Chemistry (Honors).** Lecture, three hours; discussion, one hour. Prerequisites: course 11AH with a grade of B- or better or course 11A, and consent of instructor. An honors course parallel to course 11B.

Mr. Kivelson (W)

**11BL. General Chemistry Laboratory (1 unit).** Laboratory, four hours. Prerequisite: course 11A with a grade of C- or better or consent of instructor. Corequisite: course 11B (or must already have been passed with a grade of C- or better). Enrollment priority, if needed, is given to those taking course 11B concurrently. Use of the balance; volumetric techniques; equilibria; thermochemistry; quantitative analysis using volumetric and potentiometric procedures; Beer's Law.

(F,W,Sp)

**11C. General Chemistry (3 units).** Lecture, two hours. Prerequisite: course 11B or 11BH with a grade of C- or better or consent of instructor. Bonding and molecular structure; descriptive inorganic chemistry presented in terms of the principles discussed in courses 11A and 11B.

Mr. El-Sayed, Mr. Hawthorne, Ms. Valentine (F,W,Sp)

**11CH. General Chemistry (Honors) (3 units).** Lecture, two hours. Prerequisites: course 11BL with a grade of B- or better or course 11B, and consent of instructor. An honors course parallel to course 11C.

Mr. El-Sayed, Mr. McMillan (Sp)

**11CL. General Chemistry Laboratory (2 units).** Laboratory, eight hours. Prerequisite: course 11BL with a grade of C- or better. Corequisite: course 11C (or must already have been passed with a grade of C- or better). Enrollment priority, if needed, is given to those taking course 11C concurrently. Rates of reactions; quantitative volumetric analysis; qualitative inorganic analysis; inorganic synthesis; column chromatography; colorimetric analysis.

(F,W,Sp)

**15. Organic Chemistry and Biochemistry for Pre-nursing and Kinesiology.** Prerequisite: course 11A with a grade of C- or better. Not open to students with credit for course 21. Recommended for students in certain areas of kinesiology and in the pre-nursing, prephysical therapy, and pre-dental hygiene curricula. This course does not meet requirements for admission to medical or dental schools nor does it satisfy the requirements of any major in Letters and Science other than certain areas of kinesiology. An introduction to the structures and reactions of organic compounds, particularly with respect to their roles and their transformations in living systems.

(F)

**15L. Chemistry Laboratory for Pre-nursing and Kinesiology (1 unit).** Laboratory, four hours. Corequisite: course 15 (or must already have been passed with a grade of C- or better). This course does not meet requirements for admission to medical or dental schools. An introduction to quantitative work with aqueous solutions and to the preparation, isolation, and characterization of organic compounds, particularly some of those important in living systems.

(F)

**21. Organic Structure and Reactions.** Prerequisites: courses 11C, 11CL (may be taken concurrently), with grades of C- or better, or consent of instructor. Structure, reactivity, and properties of organic compounds. The theory of functional groups, chemical bonds, molecular structure, and stereochemistry of organic compounds.

Mr. Cram, Mr. Hersh (F,W,Sp)

**23. Bioorganic Structure and Reactions.** Lecture, three hours; discussion, one hour; laboratory, four hours. Prerequisites: courses 11CL and 21 with grades of C- or better, or consent of instructor. Organic structures and reactions of biochemical interest. The classes of compounds most important to biological functions: amino acids, carbohydrates, etc. Sulfur, phosphorous, and anhydride chemistry. Methods of separation, purification, and analysis of organic compounds: extraction, crystallization, distillation, and chromatography.

Mr. Clarke, Ms. Lamb

**25. Elementary Biochemistry.** Lecture, three hours; discussion, one hour; laboratory, four hours. Prerequisite: course 23 with a grade of C- or better, or consent of instructor. Protein structure and function; enzyme catalysis; intermediary metabolism; cell constituents; properties and biosynthesis of nucleic acids and proteins. Purification and characterization of biological macromolecules; spectrophotometry; catalysis; enzyme kinetics; gel filtration and paper chromatography; viscosity; utilization of radioisotopes.

Mr. Jordan, Mr. Rees, Mr. Weiss (F,W,Sp)

**96. Special Courses in Chemistry (1 to 4 units).** To be arranged. Prerequisite: consent of undergraduate adviser (Chemistry).

(F,W,Sp)

## Upper Division Courses

**103. Environmental Chemistry.** Prerequisites: courses 21, 23, 25, 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 the effect of chemical processes on the environment.

Mr. Baur, Ms. Lamb (Sp)

**110A. Physical Chemistry: Chemical Thermodynamics.** Lecture, four hours; discussion, one hour. Prerequisites: course 11C, Physics 8B or 6C (may be taken concurrently), Mathematics 31A, 31B, 32A or, for life science majors, Mathematics 3C. An understanding of partial differentiation such as that obtained in Mathematics 3C or 32A is very desirable. Properties of gases; laws of thermodynamics; free energy; entropy; chemical potential and chemical equilibrium; thermodynamics of solutions.

Mr. McMillan, Mr. Reiss, Mr. Trueblood (F,W,Sp)

**110B. Physical Chemistry: Chemical Equilibrium, Electrochemistry, and Kinetics.** Lecture, four hours; discussion, one hour. Prerequisites: course 110A, Physics 8C. Introduction to statistical thermodynamics, kinetic theory of gases, chemical kinetics, phase equilibria, chemical equilibria in solutions, electrochemistry.

Mr. Baur, Mr. McMillan, Mr. Nicol (W,Sp)

**110C. Physical Chemistry: Charges, Fields, and Matter.** Prerequisite: course 110A. Topics include electromagnetic fields in matter — susceptibilities, molar polarization and refraction, multipoles, van der Waals forces; classical EM waves — propagation, refraction, scattering, absorption, optical rotation and rotatory dispersion, magnetic effects; radiation — multipoles, black-body, Einstein coefficients, lasers; scattering and diffraction — Rayleigh, Mie, Raman, X-ray, electron, neutron, nuclear — by particles, molecules, lattices; resonance phenomena — light, EPR, NMR, NQR, Mössbauer; electrolytes — ion activity, conductivity, rate effects.

Mr. McMillan

**113A. Physical Chemistry: Introduction to Quantum Chemistry.** Lecture, four hours; discussion, one hour. Prerequisites: course 11C, Physics 6C or 8C, Mathematics 31A, 31B, 32A, 33A. An introduction to the principles and applications of quantum chemistry; atomic structure and spectra; harmonic oscillator; rigid rotor, molecular spectra.

Mr. Gelbart, Mr. Kivelson, Mr. Scott (F,Sp)

**C113B. Physical Chemistry: Introduction to Molecular Spectroscopy.** Lecture/quiz, five hours. Prerequisite: course 113A or equivalent. Spectroscopic applications of basic quantum chemistry, including light-matter interaction, origin of selection rules, rotation-vibration spectra, anharmonic effects, electronic spectra, Franck-Condon principle, and topics from Raman, microwave, ESR, NMR, laser spectroscopy, and radiationless transitions. May be concurrently scheduled with course C213B.

Mr. Bayes, Mr. Williams (W)

**114. Physical Chemistry Laboratory.** Lecture, two hours; laboratory, eight hours. Prerequisites: courses 11CL, 110A, 110B, 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.

Mr. Bayes, Mr. Kelley, Mr. Scott (F,W,Sp)

**114H. Physical Chemistry Laboratory (Honors).** Lecture, two hours; laboratory, eight hours. Prerequisites: courses 11CL, 110A, 110B, 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 the instructor.

Mr. Bayes, Mr. Kelley, Mr. Scott

**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 quarter. Designed for chemistry students with a 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.

Mr. El-Sayed, Mr. Gelbart, Mr. Reiss  
(W, C115A; Sp, C115B)

**121. Special Topics in Physical Chemistry.** Prerequisite: course 110B. Recommended: course 113A and Physics 8D. Topics of considerable research interest presented at a level suitable for students who have completed the junior-year courses in physical chemistry.

(Sp)

**C123A-C123B. Classical and Statistical Thermodynamics.** Lecture, four hours; discussion, one hour. Prerequisite: course 110B or 156. Recommended: course 113A. Rigorous presentation of the 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 polyatomic gases, the 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.

Mr. Knobler, Mr. Scott (F, C123A; W, C123B)

**125. Computers in Chemistry.** Lecture, three hours. Prerequisites: courses 110A, 110B, 113A, and a 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.

Mr. Levine (F)

**133A. Intermediate Organic Chemistry.** Prerequisites: courses 21, 23, 25 (may be taken concurrently), with grades of C or better, or consent of instructor. Structure, reactivity, and spectroscopic properties of organic compounds. Mr. Anet, Mr. Foote (F,Sp)

**133B. Intermediate Organic Chemistry.** Lecture, three hours; laboratory, four hours. Prerequisite: course 133A with a grade of C- or better. Lectures include reactions, mechanisms, and synthesis in organic chemistry; common classes of compounds and reactions. Laboratory includes methods of organic reactions, synthesis, isolation, and characterization. Mr. Anet, Mr. Foote (F,W)

**133BG. Intermediate Organic Chemistry (2 units).** Lecture/quiz, three hours. Open only by consent of graduate adviser (Chemistry) to graduate students who have not taken course 133B at UCLA.

Mr. Anet, Mr. Foote (F,W)

**133C. Intermediate Organic Chemistry.** Lecture, two hours; laboratory, eight hours. Prerequisite: course 133B with a grade of C- or better. Lectures include reactions, mechanisms, and synthesis in organic chemistry; complex molecules and natural products; polymers. Laboratory includes methods of organic reactions, synthesis, isolation, and characterization. Mr. Anet, Mr. Foote (W,Sp)

**133CG. Intermediate Organic Chemistry (2 units).** Lecture/quiz, three hours. Open only by consent of graduate adviser (Chemistry) to graduate students who have not taken course 133C at UCLA.

Mr. Anet, Mr. Foote (W,Sp)

**136. Organic Structural Methods.** Lecture, two hours; laboratory, eight hours. Prerequisites: courses 133A, 133B, 133C, or equivalent, with grades of C- or better, or consent of instructor. A laboratory course in organic structure determination by chemical and spectroscopic methods; microtechniques.

Mr. Foote (F)

**C143A. Structure and Mechanism in Organic Chemistry.** Lecture, three hours; discussion, one hour. Prerequisites: courses 110B, 113A, 133C (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.

Mr. Chapman

**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.

Mr. Chapman

**144. Laboratory Methods in Organic Synthesis.** Lecture, two hours; laboratory, eight hours. Prerequisite: course 133C or equivalent instruction, including spectroscopic methods of organic chemistry, with a grade of C- or better, or consent of instructor. Laboratory methods of synthetic organic chemistry, including reactions under inert atmosphere, semimicroscale reaction techniques, synthesis of natural products, and molecules of theoretical interest.

Mr. Jung (Sp)

**144G. Laboratory Methods in Organic Synthesis (2 units).** Consists of the lecture portion only of course 144. Open only by consent of graduate adviser to graduate students who have not taken course 144 at UCLA and who do not wish to take the laboratory portion of course 144.

Mr. Jung

**152. Biochemistry.** Lecture, four hours; discussion, one hour. Prerequisite: course 25. Not open to students with credit for course 157A. Survey of biochemistry. May not be applied toward the chemistry or biochemistry major.

Mr. Boyer (F)

**154. Biochemical Methods.** Lecture/quiz, two hours; laboratory, eight hours. Prerequisite: course 25. Recommended: course 152 or 157A. Applications of biochemical procedures to metabolic reactions; properties of living systems; enzymes; proteins; nucleic acids and other tissue constituents.

Mr. Gralla, Mr. Martinson, Mr. Reisler (F,W,Sp)

**156. Biophysical Chemistry.** Lecture, four hours; discussion, one hour. Prerequisite: course 110A. Solution thermodynamics of biochemical systems; biochemical kinetics; energy levels, spectroscopy, and bonding; topics from structural, hydrodynamic, statistical, and electrochemical methods of biochemistry.

Mr. Eisenberg, Mr. Rees, Mr. Reislar, Mr. Schumaker (F,Sp)

**157A. Biochemistry.** Lecture, four hours; discussion, one hour. Prerequisites: courses 110A, 133B (may be taken concurrently). Enzymes; metabolic pathways and their integration and regulation; biological energetics.

Mr. Atkinson, Mr. Clarke, Mr. West (W)

**157B. Biochemistry.** Lecture, four hours; discussion, one hour. Prerequisite: course 157A. Biosynthetic metabolism; synthesis of nucleic acids and proteins and control of these processes.

Mr. Atkinson, Mr. Clarke, Mr. Jordan (Sp)

**173. Structural Inorganic Chemistry.** Lecture, three hours. Prerequisites: courses 110A (may be taken concurrently), 113A. Recommended: course 133B. Introductory survey of structure and bonding in inorganic compounds; molecular stereochemistry; donor-acceptor interactions; coordination compounds of the transition metals; elements of crystal field and ligand field theory.

Mr. Hawthorne, Mr. Kaesz, Mr. Zink (F,Sp)

**174. Inorganic and Metalorganic Laboratory Methods.** Lecture, two hours; laboratory, eight hours. Prerequisites: courses 133A, 133B, 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.

Mr. Hawthorne, Mr. Kaesz (W)

**C175. Inorganic Reaction Mechanics.** Lecture/discussion. Prerequisites: courses 110A, 110B, 113A, and 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.

Mr. Hawthorne, Ms. Valentine (F)

**C176. Group Theory and Applications to Inorganic Chemistry.** Lecture, three hours; discussion, one hour. Prerequisites: courses 113A and 173, or equivalent. Group theoretical methods; molecular orbital theory; ligand field theory; electronic spectroscopy; vibrational spectroscopy. May be concurrently scheduled with course C276A.

Mr. Strouse, Mr. Zink (F)

**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.

Mr. Strouse, Mr. Wasson (F,Sp)

**190. Undergraduate Thesis Research.** Prerequisites: two quarters of course 199 on related material and consent of undergraduate adviser and research director. Final quarter of an integrated one-year research project. May consist of experimental and/or theoretical research or, in some cases, a comprehensive review of a given area. A thesis embodying the totality of the year's work is to be submitted and an oral presentation made. The course is suggested, but not required, for those seeking departmental honors at graduation.

(F,W,Sp)

**196. Special Courses in Chemistry (1 to 4 units).** Hours to be arranged. Prerequisite: consent of undergraduate adviser (Chemistry).

(F,W,Sp)

**199A-199ZZ. Directed Individual Study or Research for Undergraduate Students (2 to 8 units).** To be arranged with faculty member who will direct the research. Prerequisites: advanced junior standing with a 3.0 GPA or senior standing in the major, and consent of department Chair. A proposal must be received one week prior to the first day of the quarter. Additional details on requirements and application may be obtained from the undergraduate counselor. P/NP grading.

(F, W, Sp)

## Graduate Courses

**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 the main group metals, the metalloids, and the transition metals, including olefin complexes and metal carbonyls; applications in catalysis and organic synthesis.

**C213B. Physical Chemistry: Molecular Spectroscopy.** Lecture/quiz, five hours. Prerequisite: course 113A or equivalent. Spectroscopic applications of basic quantum chemistry, including light-matter interaction, origin of selection rules, rotation-vibration spectra, anharmonic effects, electronic spectra, Franck-Condon principle, and topics from Raman, microwave, ESR, NMR, laser spectroscopy, and radiationless transitions. May be concurrently scheduled with course C113B. An independent study project is required of graduate students.

Mr. Bayes, Mr. Kasper

**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 quarter. Designed for chemistry students with a 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.

Mr. Gelbart, Mr. Heller

**215C. Advanced Quantum Chemistry: Applications.** Prerequisites: course C215B and 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.

**215D. Molecular Spectra, Diffraction, and Structure.** Prerequisites: course C215B and 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.

**218. Physical Chemistry Student Seminar (2 units).** Seminars are presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U grading.

**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.

**C223A-C223B. Classical and Statistical Thermodynamics.** Lecture, four hours; discussion, one hour. Prerequisite: course 110B or 156. Recommended: course 113A. Presentation of the 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 polyatomic gases, the 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.

Mr. Knobler, Mr. Scott

**223C. Statistical Mechanics.** 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.

**225. Chemical Kinetics.** Prerequisites: courses C215B, C223B. Classical experimental and theoretical approaches to the study of rates and mechanisms of chemical reactions. Modern experimental techniques and molecular-level theory of reaction dynamics. Examples of well-studied elementary reactions.

Mr. Bernstein (Sp)

**228. Chemical Physics Seminar (2 units).** Seminars are presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U grading.

**M230A. Structural Molecular Biology (2 units).** (Same as Biology M230A and Microbiology M230A.) Lecture, two hours; discussion, one hour. Prerequisite: consent of instructor based on a written research proposal. Fundamentals of electron microscopy of macromolecules and supramolecular structures, emphasizing quantitative microscopy, high resolution techniques, nucleic acid analysis, and studies on viruses and protein crystals.

Mr. Eiserling, Ms. Kasamatsu, Mr. Lake (F)

**M230B. Structural Molecular Biology (2 units).** (Same as Biology M230B.) Lecture, two hours; discussion, one hour. Prerequisites: Physics 6C, Mathematics 3C, and consent of instructor. Selected topics from the 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.

Mr. Eiserling, Mr. Lake (W)

**M230C. Structural Molecular Biology Laboratory.** (Same as Biology M230C and Microbiology M230C.) Laboratory, ten hours. Prerequisite: consent of instructor based on a written research proposal. Practical experience with electron microscopy of macromolecules and supramolecular structures, emphasizing quantitative microscopy, high resolution techniques, nucleic acid analysis, and studies on viruses and protein crystals.

Mr. Eiserling, Ms. Kasamatsu, Mr. Lake (F)

**M230D. Structural Molecular Biology Laboratory (2 units).** (Same as Biology M230D.) Laboratory, ten 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.

Mr. Eiserling, Mr. Lake (W)

**232. Stereochemistry and Conformational Analysis.** Lecture/discussion, three hours. Prerequisite: course C143 (may be taken concurrently) or consent of instructor. Molecular symmetry, chirality, prochirality, stereochemistry in vinyl polymers, atropisomerism, diastereomeric interactions in solution, conformations of acyclic and cyclic molecules.

Mr. Anet

**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.

Mr. Hersh

**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 Mechanisms.** Lecture, three hours; discussion, one hour. Prerequisites: courses 110B, 113A, 133C (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.

Mr. Chapman

**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.

Mr. Chapman

**244. Strategy and Design in Organic Synthesis.** Lecture/discussion, three hours. Prerequisite or corequisite: course C243A or consent of instructor. The theory behind the planning of syntheses of complex molecules from simpler ones. Organic reactions and their use in the synthetic process. The reasoning and art involved in organic synthesis.

**245. Applications of Electronic Theory in Organic Chemistry.** Lecture/discussion, three hours. Prerequisite or corequisite: course C243A or consent of instructor. A review of molecular orbital theory; introduction to alternative theoretical methods; aromaticity and homoaromaticity; Hückel and Möbius conjugation; Woodward-Hoffmann theory of concerted pericyclic reactions; the estimation of through-bond and through-space interactions; an introduction to photoelectron spectroscopy; related special topics.

**246. Bioorganic Chemistry.** Lecture/discussion, three hours. Prerequisite or corequisite: course C243A or consent of instructor. Organic chemical models for biological processes; synthetic models for enzymic complexation, catalysis, and inhibition; models for transport; solid support chemistry; mechanisms for differential complexation.

**247. Organic Colloquium (2 units).** Seminars in organic chemistry and related areas are 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 are presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U grading.

**249. Problems in Advanced Organic Chemistry (2 units).** Problems in organic reaction mechanisms, synthesis, structure determination, stereochemistry, spectroscopy, electronic theory, photochemistry, and organometallic chemistry are discussed, with emphasis on current literature. Intended primarily for first- and second-year graduate students as preparation for cumulative exams. May be repeated for credit. S/U grading.

**250. Topics in the Biochemistry and Molecular Biology of Animal Cells.** Lecture, three hours. Prerequisites: courses 133A, 133B, 133C, or equivalent, 157A, 157B, courses in genetics and molecular biology, consent of instructor. The course considers the 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.

Mr. Jordan and invited speakers

**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.

**M253. Macromolecular Structure (6 units).** (Same as Biological Chemistry M253.) Lecture or recitation, five hours. Prerequisites: courses 110A, 156, 157A, and 157B or Biological Chemistry 101A-101B or 201A-201B, or equivalent, or consent of instructor. Chemical and physical properties of proteins, nucleic acids, and other macromolecular complexes, with emphasis on theory and methodology; correlation of structure and biological properties; chemical synthesis and properties of polypeptides and polynucleotides.

**254. Advanced Biochemical Methods.** Lecture/quizz, two hours; laboratory, eight hours. Prerequisite: course 156 or consent of instructor. Recommended corequisites: courses 157A and 157B. Theoretical and practical basis of metabolic, chromatographic, kinetic, electrophoretic, ultracentrifugal, isotopic, and other techniques as applied to biochemical systems.

Mr. Eisenberg, Mr. Shumaker (W)

**M255. Enzymes, Metabolism, and Regulation (6 units).** (Same as Biological Chemistry M255.) Lecture or recitation, five hours. Prerequisites: courses 110A, 156, 157A, and 157B or Biological Chemistry 101A-101B or 201A-201B, or equivalent. Recommended: course M253. Thermodynamic and kinetic aspects of metabolism; regulatory properties of enzymes; metabolic regulation; consideration of comparative aspects of metabolism in relation to physiological function; enzymic mechanisms and methods for their study.

**M257. Physical Chemistry of Biological Macromolecules (2 units).** (Same as Biological Chemistry M257.) Prerequisite: course 25 or 110A or consent of instructor. Theory of hydrodynamic, thermodynamic, optical, and X-ray techniques used to study the structure and function of biological macromolecules.

Mr. Schumaker (F)

**257L. Hydrodynamic and Optical Characterization of Biopolymers.** Lecture, two hours; laboratory, eight hours. Prerequisite or corequisite: course M257. A laboratory course covering a variety of hydrodynamic and optical techniques, including an individual project dealing with sedimentation velocity, sedimentation equilibrium, buoyant density gradient centrifugation, capillary and rotating cylinder viscometry, circular dichroism, or intensity fluctuations of scattered laser light.

**258. Biochemistry Student Seminar (2 units).** Seminars are presented by graduate students on topics of current biochemical interest. May be repeated for credit. S/U grading.

**259. Mechanisms in Regulation of Transcription.** Lecture, three hours. Prerequisite: course M253 or M267 or consent of instructor. Prokaryotic operons; initiation and termination; DNA regulatory sequences and regulator protein-DNA interactions; RNA polymerases; regulation of eukaryotic transcription; hormones, differentiation, the cell cycle; role of chromatin structure in mediating regulation.

**M261. Advanced Chemistry and Biochemistry of Lipids.** (Same as Biological Chemistry M261.) Lecture, three hours; discussion, one hour. Prerequisites: courses 157A and 157B, Biological Chemistry 101A-101B or 201A-201B, or equivalent. Comprehensive treatment of lipid nutrition and metabolic-nutrient interactions.

Ms. Alfin-Slater, Mr. Mead, Mr. Popjak

**262. Biological Energy Transductions.** Lecture, three hours. Prerequisite: course 157B or equivalent. 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. Mr. Boyer

**M264A-M264B-M264C. Molecular Basis of Atherosclerosis: Selected Topics (2 units each).** (Formerly numbered M264.) (Same as Biological Chemistry M264A-M264B-M264C.) Prerequisites: course M261 or equivalent and consent of instructor. The courses cover a variety of topics concerning the biochemistry, morphology, and physiology of atherosclerosis. Emphasis on the chemistry of lipoproteins and the role of plasma lipoproteins in the regulation of tissue lipid metabolism and the development of atherosclerosis. Each course may be taken independently for credit.

**266. Seminar in Techniques for the Study of Gene Regulation (2 units).** Prerequisite: course 259 or consent of instructor. A seminar to discuss specific experimental approaches being taken in the study of gene regulation. Emphasis on the 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 M267.) Lecture or recitation, five hours. Prerequisites: courses 157A and 157B or Biological Chemistry 101A-101B or 201A-201B, or equivalent. Recommended: course M253. Metabolism of nucleic acids and proteins; biosynthesis of complex lipids and polysaccharides; structure and properties of cellular organelles.

**268. Biochemistry Research Seminar (2 units).** Seminars are presented by staff, outside speakers, postdoctoral fellows, and graduate students on topics of current biochemical research interest. May be repeated for credit. S/U grading.

**M269. Developmental Biochemistry (2 units).** (Same as Biological Chemistry M269.) Prerequisite: course M267 or consent of instructor. The course deals with the biochemical aspects of development, specific tissue and cell function, and differential gene expression. The biochemistry of cell division, macromolecular synthesis, chromatin function in gene expression, cell-cell interactions, membrane organization, and growth are studied as they contribute to such topics as hormone induction, morphogenesis, and viral transformation. Emphasis on the use of differentiating *in vivo* systems and cell culture as models. Mr. Harary, Mr. Herschman

**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.

**C275. Inorganic Chemistry: Reaction Mechanisms.** Lecture/discussion. Prerequisites: courses 110A, 110B, 113A, and 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. Mr. Hawthorne

**C276A. Inorganic Chemistry: Group Theory and Spectroscopy.** Lecture, three hours; discussion, one hour. Prerequisites: courses 113A and 173, or equivalent. Group theoretical methods; molecular orbital theory; ligand field theory; electronic spectroscopy; vibrational spectroscopy. May be concurrently scheduled with course C176. Mr. Strouse, Mr. Zink

**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 the elucidation of structure and bonding in inorganic and organometallic compounds. Mr. Strouse (W)

**277. Crystal Structure Analysis.** Lecture, three hours. Theory and practice of modern crystallography. Course emphasizes 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.

Mr. Dickerson, Mr. Eisenberg,  
Mr. Strouse, Mr. Trueblood

**278. Inorganic Chemistry Student Seminar (2 units).** Seminars are presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U grading.

**279. Bioinorganic Chemistry.** Lecture, three hours. Prerequisites: courses 110A and either 156 or 173. The role of metal ions in biology; introduction to metalloenzymes and metalloproteins; metal ion interactions with nucleic acids; metal ion metabolism.

Ms. Valentine

**M298. Seminar in Current Topics in Molecular Biology (2 units).** (Same as Biological Chemistry M298, Biology M298, Microbiology M298, Microbiology and Immunology M298, and Molecular Biology M298.) Discussion, one hour. Prerequisite: consent of instructor and graduate adviser of interdepartmental Molecular Biology Ph.D. committee. 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. A teaching apprenticeship under the 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 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 Ph.D. Qualifying Examination or M.S. Comprehensive Examination (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)

6532 Boelter Hall, 825-5534

### Professors

David L. Douglass, Ph.D. (*Engineering and Applied Science*)

M. Frederick Hawthorne, Ph.D. (*Chemistry*)

Herbert D. Kaesz, Ph.D. (*Chemistry*)

John D. Mackenzie, Ph.D. (*Engineering and Applied Science*)

Malcolm F. Nicol, Ph.D. (*Chemistry*)

Kanji Ono, Ph.D. (*Engineering and Applied Science*)

Howard Reiss, Ph.D. (*Chemistry*)

### Associate Professor

Bruce S. Dunn, Ph.D. (*Engineering and Applied Science*)

## 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:** Mathematics 31A, 31B, 32A, 32B, 33A (this is the revised calculus sequence; students who have completed 31C must complete the old sequence — 31A-31B-31C, 32A-32B-32C), Physics 8A, 8B, 8C, 8D, Computer Science 10C or 10F, Materials Science and Engineering 14, Chemistry 11A or 11AH, 11B or 11BH, 11C or 11CH, 11BL or 11CL, 21 (may be replaced by 133A if offered as part of the major), English 3.

### The Major

**Required:** Chemistry 110A, 110B, 113A, C113B or C115A-C115B, 114, 173, one or two courses from C123A, C123B, 133A, 133B, 133C, 174, C175, C176; Materials Science and Engineering 144A, 146A, 147A, three to four courses from 140D, 141, 142A, 143A, 145A, 145B, 146F, 147B, 147E, two courses from 142L, 144L, 146L.

For further information, contact Barbara Brooks, Engineering/Materials Science, 6532 Boelter Hall.

## Chicano Studies (Interdepartmental)

3121 Campbell Hall, 825-2363

### Professors

William G. Figueroa, M.D. (*Medicine*)  
John Garcia, Ph.D. (*Psychology*)  
Juan Gómez-Quíñones, Ph.D. (*History*)  
Amado M. Padilla, Ph.D. (*Psychology*)

### Associate Professors

Rosina Becerra, Ph.D. (*Social Welfare*)  
Leo Estrada, Ph.D. (*Architecture and Urban Planning*)  
David E. López, Ph.D. (*Sociology*)  
Manuel R. Miranda, Ph.D. (*Social Welfare*)  
Raymund A. Paredes, Ph.D. (*English*)  
Raymond A. Rocco, Ph.D. (*Political Science*)  
Simon González, Ed.D., *Emeritus* (*Education*)

### Assistant Professors

Felipe Castro, Ph.D. (*Psychology*)  
Carlos V. Grijalva, Ph.D. (*Psychology*)  
Guillermo Hernández, Ph.D. (*Spanish*)  
Rebecca Morales, M.A. (*Architecture and Urban Planning*)  
Sylvia Rodríguez, Ph.D. (*Anthropology*)  
Concepción Valadez, Ph.D. (*Education*)

### Lecturer

Hector Calderón, Ph.D. (*Spanish*)

### Adjunct Professor

Armando Morales, D.S.W. (*Psychiatry*)

### Visiting Lecturer

Romulus E. Zamora, M.F.A. (*Theater Arts*)

## Scope and Objectives

Today there is a demand for individuals with extensive knowledge of the Chicano community. Opportunities are developing 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 Mexican communities. The Chicano studies major provides students with the language and cross-cultural studies background that will enhance their qualifications for positions in schools, governmental organizations, and private enterprise.

The program, coordinated through the Chicano Studies Research Center, is multidisciplinary and leads to the Bachelor of Arts degree. Special features include a field studies project, a Spring Quarter colloquium, and a guest speaker series.

## Bachelor of Arts Degree

The B.A. program in Chicano Studies is designed to provide systematic instruction for liberal arts and preprofessional majors who wish concentrated study of the Chicano experience. Viewed as developmental, the program subjects the Chicano reality to critical investiga-

tion, including the social, economic, educational, historical, political, and psychological analysis of the Chicano.

The major is recommended for students preparing for graduate study as well as for public service careers. You are encouraged to spend up to one year in either (1) a service agency in the Chicano community or (2) a professional research project on the Chicano experience.

### Preparation for the Major

**Required:** One course from each of the following departments: Anthropology 5, 6, or 22; Economics 1 or 2; History 6A, 6B, or 6C; Political Science 1; Sociology 1; Spanish 5 or equivalent. You must complete prerequisites for all courses selected.

### The Major

This consists of three elements, one of which is optional (you must complete prerequisites for all courses in the major):

(1) **Major Core** (nine courses): Chicano Studies M102, M105, M145, M147, M159A, M159B, M172T; History 197; Sociology 124\* or 155\*.

(2) **Major Concentration:** Four courses in one discipline, selected from Anthropology 115P, 135P, 135Q, 136P, 138, M140, 150, 154, 166, 167, 185; Economics 110, 120, 121, 150, 151, 152, 172; English M104, 106, 171, 172, 173, 174, 188, 189, 190; History 147B, 153, 154B, 160, 162, 163; Library and Information Science 111C, Political Science 115, 142, 149, 172B, 173, 174, 182A, 186, 190, 191; Psychology 127, 130, 134, 135, 136A, 137A, 137C, 143, 175; Sociology 109, 113, 120, 123, 125, 140, 142, M143, and 155\* or 124\*; Spanish 100A, 100B, 105A, 105B, 107, 115, 118A, 118B, 136A, 136B, 137, 139, 142, 143, 144, M149. You may petition the committee in charge of the major to include in the major concentration area a course not on the approved list. CED courses may be applied by petition.

\*Course may not be used for both the major core and major concentration.

(3) **Optional Multidisciplinary Senior Thesis** — Prerequisite: senior standing. 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 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 quarter includes thesis conceptualization and formulation, along with preliminary data collection for the thesis. The second quarter 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 department Chair and either the Chair or adviser for the Chicano studies major. No more than two CED courses may be applied toward the major concentration.

## Upper Division Courses

**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 the development of Mexican-American and Chicano youth and communities.

**M103C. The Origins and Evolution of Chicano Theater.** (Same as Theater Arts M103C.) Lecture, three hours. Prerequisite: upper division standing. An exploration of the development of Chicano theater from its beginnings in the legends and rituals of ancient Mexico to the work of Luis Valdez (late 1960s). Mr. Zamora

**M103D. Contemporary Chicano Theater.** (Same as Theater Arts M103D.) Lecture, three hours. Prerequisite: upper division standing. A study of recent trends in Chicano theater as reflected in the works of contemporary Chicano dramatists and theater artists. Mr. Zamora

**M105. The Chicano Experience in Literature.** (Same as English M105.) Prerequisite: satisfaction of Subject A requirement. The study of literature in English by and about Chicanos. The course surveys the depiction of the Chicano experience in American literature generally and focuses on the development of Chicano literature itself, its cultural backgrounds, and distinctive uses of languages. Mr. Paredes

**M145. Introduction to Chicano Literature.** (Same as Spanish M145.) Lecture, three hours. Prerequisite: Spanish 25 or 26. Recommended: Spanish 136B. Introduction to texts representative of the Chicano literary heritage. The course seeks to provide a 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 of the required reading is in Spanish. Bilingual and English works are included and discussed. A number of important scholarly and critical statements pertaining to the characteristics and development of the Chicano literary corpus are read and analyzed. Mr. Hernández

**M147. Minority Group Politics.** (Same as Political Science M147.) Lecture, three hours; discussion, one hour. Prerequisites: Political Science 1 plus one of the following: one additional 140-level political science course or one upper division course on race or ethnicity from history, psychology, or sociology, or consent of instructor. A systematic evaluation of the functioning of the American polity related to problems of race and ethnicity. Topics include leadership, organization, ideology, conventional versus unconventional political behavior, inter-minority relations, co-optation, symbolism, and repression. Mr. Rocco



**M159A. History of the Chicano Peoples.** (Same as History M159A.) A survey lecture course on the 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 a special focus on labor and politics. Provides an integrated understanding of change over time in the Mexican community by inquiry into the major formative historical forces affecting the community. Deals with social structure, economy, labor, culture, political organization, conflict, and international relations. Emphasis is on social forces, class analysis, social, economic, and labor conflict, ideas, domination and resistance. Developments are related to historical events of significance occurring both in the United States and Mexico. Course involves lectures, special presentations, reading assignments, written examinations, library and field research, and submission of a paper.

Mr. Gómez-Quíñones

**M159B. History of the Chicano Peoples.** (Same as History M159B.) A survey lecture course on the historical development of the Mexican (Chicano) community and people of Mexican descent in the United States through the 20th century, with a special focus on labor and politics. Provides an integrated understanding of change over time in the Mexican community by inquiry into the 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 are related to historical events of significance occurring both in the United States and Mexico. Course involves lectures, special presentations, reading assignments, written examinations, library and/or field research, and submission of a paper.

Mr. Gómez-Quíñones

**M172T. Ethnohistory of Hispanic Cultures in the U.S. Southwest.** (Same as Anthropology M172T.) Prerequisite: Anthropology 5 or 22 or consent of instructor. An ethnography of the social and cultural adaptations of the Hispanic peoples in the U.S. Southwest: their respective social organization, economic and political institutions, sacred and secular belief systems, and expressive cultures.

## Classics

7349 Bunche Hall, 825-4171

### Professors

Michael W. Haslam, Ph.D.  
Philip Levine, Ph.D.  
Bengt T. M. Löfstedt, Ph.D. (*Medieval Latin*), Chair  
Jaan Puhvel, Ph.D.  
Milton V. Anastos, Ph.D., *Emeritus*  
Paul A. Clement, Ph.D., *Emeritus*  
Albert H. Travis, Ph.D., *Emeritus*

### Associate Professors

Ann L. T. Bergren, Ph.D.  
Andrew R. Dyck, Ph.D.  
Bernard D. Fischer, Ph.D.  
Steven Latimore, Ph.D.

### Assistant Professors

David L. Blank, Ph.D.  
Thomas N. Habinek, Ph.D.  
Katherine C. King, Ph.D.

### Lecturers

Helen C. Caldwell, M.A., *Emeritus*  
Barbara E. Killian, M.A., *Emeritus*  
Evelyn Venable Mohr, M.A., *Emeritus*

## 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, and religion. The department strongly emphasizes 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 the Classics (i.e., 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 purpose of the classical civilization major is to provide a balanced, yet focused, view of the ancient civilizations of Greece and Rome, both historically unique and universally typical human creations. The approach to the subject is accordingly both causal and comparative. The areas of study include the elements of culture — religion, mythology, philosophy, art, literature, language, the socioeconomic system, and politics. The requirements of the major encourage both breadth and depth: eight of the 14 required upper division courses (four from this department and four from other departments) must be taken in one of the four areas of concentration listed below; the remaining six upper division courses taken in this department may be selected to reflect your varied interests in the areas outside your concentration. The culmination of the program will be a senior paper, written during your senior year under professorial supervision. While this major is not designed to qualify you for graduate study in classics, it does not preclude a transition to advanced study in classics or related fields.

### Preparation for the Major

*Required:* Classics 10 and 20.

### The Major

*Required:* (1) Classics 195 and nine upper division courses in this department, of which no more than three may be selected from either Greek 100 through 130 or Latin 100 through 133 and of which four must be selected from

the courses listed below under any one of the four areas of concentration; (2) any four related courses in other departments listed below in your chosen area of concentration. Total courses required: 14.

### Areas of Concentration

**(1) Language and Society:** Classics 180, three courses from either Latin 100 through 133 or Greek 100 through 130. *Related courses:* Anthropology M140, Communication Studies 100, Linguistics 100, M150, 170, Philosophy 127A, 127B, 172.

**(2) Religion and Mythology:** Classics 150A, 150B, 161, 162, 166A, 166B, 168. *Related courses:* Anthropology 133P, 156, English M111A, Ancient Near East 170, 171.

**(3) Literature and Society:** Classics 141, 142, 143, 144, 150A, 150B, 162. *Related courses:* Anthropology 133R, 150, 152, 154, M163, 185, Communication Studies 100, 142, English 109, 190, History 115A-115B-115C, 116A-116B, 117A-117B, 118, Humanities 102, C105, C107, C111, Philosophy 101A, 101B, 102, Political Science 111A, Sociology 125, 159, Theater Arts 102A, 102D.

**(4) Ancient Art, Architecture, and Urbanistics:** Classics 150A, 150B, 151B, 151C, 151D (new courses are under study and will be added). *Related courses:* Art 103A, 103B, 103C, 103D, 105A, Geography 151, Sociology 125, same history and anthropology courses as above under item 3.

## 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 142 and either 141 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 151A, 151B, 151C, 151D), classical linguistics (Classics 180), classical mythology (Classics 161, 162, 168), Greek and Roman religion (Classics 166A, 166B), ancient philosophy (Philosophy 101A, 101B, 102, Greek 121, 122, 123, 124), Byzantine civilization (Classics M170A, M170B), 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 143 and either 141 or 142; (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 151A, 151B, 151C, 151D), classical linguistics (Classics 180), classical mythology (Classics 161, 162, 168), Greek and Roman religion (Classics 166A, 166B), ancient philosophy (Philosophy 101A, 101B, 102, Greek 121, 122, 123, 124), Byzantine civilization (Classics M170A, M170B), medieval Latin literature (Latin 131, 133). Total courses required: 16.

## Bachelor of Arts in Classics (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 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 151A, 151B, 151C, 151D), classical linguistics (Classics 180), classical mythology (Classics 161, 162, 168), Greek and Roman religion (Classics 166A, 166B), ancient philosophy (Philosophy 101A, 101B, 102, Greek 121, 122, 123, 124), Byzantine civilization (Classics M170A, M170B), medieval Latin literature (Latin 131, 133). Total courses required: 16.

Note: Students in the classics, 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 and Latin majors and requirement 2 of the classics 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, 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.

## Master of Arts Degrees

### Admission

Requirements for admission to the M.A. programs are a UCLA B.A. degree, or the equivalent, with a major in classics (for the Classics M.A.), Greek (for the Greek M.A.), or Latin (for the Latin M.A.) and 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 the Graduate Record Examination (while there is no minimum required score, the GRE is used as a criterion in uncertain cases, as well as to assess applications for teaching assistantships and other financial assistance from the department). In cases of deficient preparation or doubtful equivalency to a UCLA B.A., the department may grant provisional admission, requiring additional coursework or a written examination. Applicants for the Classics M.A. program who are deficient in Greek (or Latin) may be admitted to the Latin (or Greek) program, then permitted to transfer into the classics program when the deficiencies have been removed. The department uses the same application as Graduate Admissions, which may be obtained from the department or Graduate Admissions.

### Major Fields or Subdisciplines

The department offers M.A. degrees in Classics (Greek and Latin), Greek, and Latin.

### Foreign Language Requirement

In addition to taking courses in Greek and/or Latin, you must demonstrate proficiency in German, French, or Italian during the first year of study, either by passing German 5, French 5, or Italian 5 at UCLA (or an equivalent course) with a minimum grade of C, or by ex-

amination. For German and French, the examination is the standard Educational Testing Service (ETS) reading examination, with a minimum score of 500; for Italian, a written translation examination is administered by the department.

## Course Requirements

For the Classics M.A., nine courses are required. These must include Greek 210 and Latin 210, one course each from the Greek 200A-200B-200C and Latin 200A-200B-200C series, and one course in the 201 through 229 series in each language. The three remaining courses are to be selected in consultation with the graduate adviser from the upper division and graduate courses offered by the department (or exceptionally by other UC departments or programs).

Nine courses are required for the Greek and Latin M.A. degrees. The University requires that at least five be graduate courses. For the Greek M.A., these must include Greek 210, two courses from the Greek 200A-200B-200C series, one course from the Greek 201 through 229 series, three additional upper division or graduate Greek courses, and two additional upper division or graduate courses to be selected in consultation with the graduate adviser. The Latin M.A. course requirements are identical except for the substitution of Latin for Greek courses.

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 for the M.A. degrees. Before the examination, you are expected to complete the departmental reading lists in Greek (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 examinations consist of three two-hour written tests on sight translations from Greek and prepared texts from the Greek reading list (for the Classics and Greek M.A.), sight translations from Latin and prepared passages from the Latin reading list (for the Classics and Latin M.A.), and the history of Greek and Latin literature (Greek or Latin for the Greek or Latin M.A.). The three examinations may be taken on three separate days, which need not be during the same quarter. The M.A. examinations are normally given at the beginning of each quarter. All examinations may be repeated once; in exceptional cases and with the consent of the departmental faculty, more than once.

## Ph.D. Degree

### Admission

In addition to an M.A. degree (see below), the department requires a statement of purpose. Students without a UCLA M.A. must also submit three letters of recommendation, normally from previous instructors in the classics, and

the Graduate Record Examination (while there is no minimum required score, the GRE is used as a criterion in uncertain cases, as well as to assess applications for teaching assistantships and other financial assistance from the department). The department uses the same application form as Graduate Admissions, which may be obtained from the department or Graduate Admissions.

A UCLA M.A. degree in Classics (Greek and Latin), Greek, or Latin, with distinction, or an equivalent degree is required. In cases of doubtful equivalency to the UCLA M.A. degree, the department may allow provisional admission.

### Major Fields or Subdisciplines

The department offers the Ph.D. degree in Classics with the following areas of specialization: classical literature and philology, classical linguistics, ancient history, ancient philosophy, classical archaeology, patristic and Byzantine studies, medieval Latin studies.

### Foreign Language Requirement

New students in the doctoral program will normally have demonstrated proficiency in French, German, or Italian as described in the requirements for the M.A. degree. During the first year of study in the Ph.D. program, you must demonstrate proficiency in either French (Italian may be substituted with the consent of the regular departmental faculty) or German, whichever was not used to satisfy the M.A. requirement. If Italian or French was used to satisfy the M.A. requirement, German must be taken.

### Course Requirements

At least one full year of graduate study (normally eight to nine courses) is required as preparation for the University Qualifying Examinations. You may choose any of the areas of specialization listed above and, if entering with a UCLA M.A. in Classics or the equivalent, may take courses entirely within the area of specialization; if you specialize in classical literature and philology, you may concentrate on Greek or Latin as research interests dictate. If you enter with a UCLA Greek M.A. or the equivalent, you must take, in addition, Latin 210, one course from the Latin 200A-200B-200C series, and one course from the Latin 201 through 229 series if you have not previously taken these courses. If you enter with a UCLA Latin M.A. or the equivalent, you must satisfy identical course requirements in Greek.

### Qualifying Examinations

Before the University Qualifying Examinations, you must complete the departmental Ph.D. reading list in either Greek or Latin authors, which is in addition to the M.A. reading lists and varies somewhat according to the area of specialization. In addition, students entering with the Greek M.A. must complete the

Latin M.A. reading list; students entering with the Latin M.A. must complete the Greek M.A. reading list. Students are advanced to candidacy as a result of passing the qualifying examinations (which consist of written examinations covering translation, the reading lists, and your area of specialization) and an oral examination covering both the area of specialization and the general field of classical studies. Each examination may normally be repeated once.

### Final Oral Examination

An oral defense of the dissertation, which is written under the supervision of the individual adviser and must contribute significantly to research on the subject, may be required or waived at the discretion of the doctoral committee.

### Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Classics

### Lower Division Courses

**10. Survey of Classical Greek Culture.** Lectures, many illustrated, on Greek life and culture from the age of Homer to the Roman Conquest. Discussion of art, literature, philosophy, and mythology. Knowledge of Greek is not required. Mr. Blank, Mr. Lattimore

**20. Survey of Roman Civilization.** A study of life and culture of Rome from the time of its foundation to the end of antiquity. A survey of art, literature, and political thought of the Romans. Selections from Latin authors are read in translation. Knowledge of Latin is not required. Mr. Blank, Mr. Habinek

**M70. Survey of Medieval Greek Culture.** (Same as History M70.) Classical roots and medieval manifestation of Byzantine civilization: political theory, Roman law, pagan critique of Christianity, literature, theology, and contribution to the Renaissance (including the discovery of America). Mr. Dyck

### Upper Division Courses

**141. A Survey of Greek Literature in English.** A study of classical Greek literature, exclusive of the drama, with readings in English. Mr. Haslam, Ms. King

**142. Ancient Drama.** A study of the major Greek and Latin dramas in translation. Mr. Dyck, Mr. Haslam, Ms. King

**143. A Survey of Latin Literature in English.** A study of classical Latin literature, exclusive of the drama, with readings in English. Mr. Blank, Mr. Dyck, Mr. Frischer

**144. A Survey of Greek and Roman Epic in Translation.** Homer's *Iliad* and *Odyssey*, Vergil's *Aeneid*, and Ovid's *Metamorphoses* are studied in translation. Ms. Bergren, Ms. King

**145. Ancient Greek and Roman Philosophy.** Lecture, two hours; discussion, one hour. A study of some of the major Greek and Roman philosophical texts, including those of the Pre-Socratics, Plato, Aristotle, and Hellenistic philosophers. The course focuses on the historical and cultural setting of the texts, their literary form, interrelations, and contribution to the discussion of basic philosophical issues. Mr. Blank

**150A. Origins of the Western View of Women: The Female in Greek Thought.** (Formerly numbered 150.) Lecture, three hours. An interdisciplinary study of the concept of the female in the 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. Ms. Bergren

**150B. Origins of the Western View of Women: The Female in Roman and Early Christian Thought.** (Formerly numbered 150.) Lecture, three hours. Course 150A is not prerequisite to 150B. An interdisciplinary study of the concept of the female in Roman and early Christian thought. Special emphasis on the status of the female with regard to sexuality, procreation, and the sacred. Ms. Bergren

**151A. Classical Archaeology: The Aegean Bronze Age.** (Formerly numbered 151D.) The course is a survey of the prehistoric art and archaeology of the Greek lands. Knowledge of Greek is not required.

**151B. Classical Archaeology: Greco-Roman Architecture.** (Formerly numbered 151A.) A general introduction to the study of Aegean, Greek, and Roman architecture. Knowledge of Greek and Latin is not required. Mr. Lattimore

**151C. Classical Archaeology: Greco-Roman Sculpture.** (Formerly numbered 151B.) A general introduction to the study of Aegean, Greek, and Roman sculpture. Knowledge of Greek and Latin is not required. Mr. Lattimore

**151D. Classical Archaeology: Greco-Roman Painting.** (Formerly numbered 151C.) A general introduction to the study of Aegean, Greek, and Roman painting. Knowledge of Greek and Latin is not required. Mr. Lattimore

**152. The Ancient City.** A study of urban planning in the ancient world, with particular attention to the cities of classical Greece and Rome, but with consideration also to comparable developments in the ancient Near and Far East. There is examination of questions of architectural space and organization, of the form, design, and function of the major municipal areas and buildings, and of the provision of public amenities by detailed reference to significant archaeological sites and contemporary sources. Mr. Frischer

**161. Introduction to Classical Mythology.** The origins of classical myth; the substance of divine myth and heroic saga; the place of myth in religion; a survey of the study of classical mythology. Mr. Habinek, Mr. Lattimore, Mr. Puhvel

**162. Classical Myth in Literature.** The use of myth in the principal authors and genres of Greek and Roman literature, with examples of its influence in later literatures. Mr. Haslam

**165. Ancient Athletics.** A study of ancient Greek and Roman athletics and their connections with religion, politics, literature, and art. Mr. Frischer, Mr. Lattimore

**166A. Greek Religion.** A study of the religion of the ancient Greeks. Mr. Blank, Mr. Dyck

**166B. Roman Religion.** A study of the religion of the ancient Romans. Mr. Frischer

**168. Introduction to Comparative Mythology.** Prerequisite: course 161 or consent of instructor. The religious, mythical, and historical traditions of Greece and Rome compared with each other and with those of other ancient Near Eastern and European societies. Mr. Puhvel

**M170A. Byzantine Civilization.** (Same as History M122A.) Emphasis on Byzantine theology. Mr. Dyck

**M170B. Byzantine Civilization.** (Same as History M122B.) Literature, relations with Rome, and the Renaissance. Mr. Dyck

**180. Introduction to Classical Linguistics.** Prerequisites: Greek 3, Latin 3. Basics of the comparative grammar of Greek and Latin in relation to one another and in the frame of Indo-European linguistics. Mr. Puhvel

**195. Senior Paper.** Limited to seniors in classical civilization. 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.

**199. Special Studies in Classics (2 to 8 units).** Prerequisites: senior standing and consent of instructor.

## Graduate Courses

**200. History of Classical Scholarship.** Mr. Dyck  
**230A-230B. Language in Ancient Asia Minor.** Prerequisite: consent of instructor. Survey of the language situation in Anatolia in the 2nd and 1st Millennia B.C. Readings in Hittite, Palaic, Luwian, Hieroglyphic, Lycian, and Lydian texts. Anatolian-Greek relationships and survivals in classical and Hellenistic times. Mr. Puhvel

**240. Etruscology.** Prerequisite: consent of instructor. A survey of scholarly research on Etruscan language and culture, with analysis of epigraphic material. Mr. Puhvel

**244. Textual Criticism: Studies in the Preparation of a Critical Edition of Greek and/or Latin Texts.** Seminar, three hours. The student learns the different steps that are required in the preparation of a critical edition of an ancient text: localizing the manuscripts; collation; establishing the stemma; choosing the right reading on the basis of knowledge of the context, of the language of the author, and of the sources; emendations; formulation of the *apparatus criticus* and the *apparatus fontium*. Mr. Haslam, Mr. Levine, Mr. Löfstedt

**246. Greek and Latin Meter.** Prerequisite: consent of instructor. A comprehensive study of meter as it functions in classical poetry. Mr. Haslam

**251A. Seminar in Classical Archaeology.** The Aegean Bronze Age.

**251B. Seminar in Classical Archaeology.** Greco-Roman architecture. Mr. Frischer, Mr. Lattimore

**251C. Seminar in Classical Archaeology.** Greco-Roman sculpture. Mr. Lattimore

**251D. Seminar in Classical Archaeology.** Greco-Roman painting. Mr. Lattimore

**252. Topography and Monuments of Athens.** Detailed studies in the topography and monuments of Athens, combining the evidence of literature, inscriptions, and actual remains. Mr. Lattimore

**253. Topography and Monuments of Rome.** Detailed studies in the topography and monuments of ancient Rome, combining the evidence of literature, inscriptions, and actual remains. Mr. Frischer, Mr. Lattimore

**260. Topics in Ancient Religion.** Seminar, three hours. Prerequisite: consent of instructor. Ms. Bergren, Mr. Habinek, Mr. Lattimore

**268. Seminar in Comparative Mythology.** Prerequisites: course 168 and consent of instructor. Advanced study of selected topics in comparing Greek and Roman traditions with other ancient Near Eastern and European societies. Mr. Puhvel

**287. Graduate Colloquium in Classical Literature.** (Formerly numbered M287.) Reading, research, and discussion of selected topics from Greek and Roman literature. The course supplements the regular seminars in literature which are devoted to the study of particular authors. Literary topics such as the portrayal of character, the use of myth, narrative methods, genre, and the use of poetic devices are studied in a broader range of classical literature. May be repeated for credit. Ms. Bergren

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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).**

**597. Study for M.A. Comprehensive Examination or Ph.D. Qualifying Examination (2 to 8 units).**

**599. Research for Ph.D. Dissertation (2 to 8 units).**

## Greek

### Lower Division Courses

**1. Elementary Greek.** Lecture, five hours.

**2. Elementary Greek.** Lecture, five hours. Prerequisite: course 1.

**3. Elementary Greek.** Lecture, five hours. Prerequisite: course 2.

**40. The Greek Element in English.** A study of the derivation and usage of English words of Greek origin: analysis into their component elements directed toward understanding of form and meaning. Knowledge of Greek is not required. Mr. Blank

### Upper Division Courses

Note: Greek 3 is prerequisite to 100. Greek 100 is prerequisite to 101A through 107 and 110 through 124.

**100. Readings in Greek Prose.** Prerequisite: course 3. Plato's *Apology* or a text of comparable difficulty is read. Ms. Bergren, Mr. Habinek, Mr. Haslam

**101A. Homer: *Odyssey*.** Mr. Haslam, Ms. King, Mr. Puhvel

**101B. Homer: *Illiad*.** Mr. Haslam, Ms. King, Mr. Puhvel

**102. Lyric Poets.** Selections from Archilochus to Bacchylides. Ms. Bergren, Mr. Haslam

**103. Aeschylus.** Ms. Bergren, Mr. Blank, Mr. Haslam

**104. Sophocles.** Ms. Bergren, Mr. Haslam, Ms. King

**105. Euripides.** Mr. Frischer, Mr. Haslam, Ms. King

**106. Aristophanes.** Ms. Bergren, Mr. Haslam

**110. The Study of Greek Prose.** Work in sight reading and grammatical analysis of Attic prose texts; writing the Attic prose. Mr. Blank, Mr. Haslam

**111. Herodotus.** Mr. Blank, Mr. Lattimore

**112. Thucydides.** Mr. Haslam, Ms. King, Mr. Lattimore

**113. Attic Orators.** Mr. Dyck, Mr. Haslam

**121. Plato.** Mr. Blank, Mr. Frischer, Ms. King

**122. Plato: *Republic*.** Ms. Bergren, Mr. Blank, Mr. Haslam

**123. Aristotle: *Poetics and Rhetoric*.** Mr. Blank, Mr. Haslam

**124. Aristototele: *Ethics*.** Mr. Blank, Mr. Dyck, Mr. Frischer

**130. Readings in the New Testament.** Prerequisite: course 3. Mr. Dyck, Mr. Haslam

**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. Mr. Blank, Mr. Dyck, Mr. Haslam

**132. Survey of Byzantine Literature.** Prerequisite: course 100. Readings are 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 this is unavailable, *Poeti bizantini*, ed. R. Cantarella. In addition, necessary historical and cultural background is provided by readings and lectures. Mr. Dyck

**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. Mr. Dyck

**199. Special Studies in Greek (2 to 8 units).** Prerequisites: senior standing and 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 prerequisite to course B, a seminar.

**200A-200B-200C. History of Greek Literature.** Prerequisite: consent of instructor. Lectures on the history of Greek literature, supplemented on the part of the student by independent reading of Greek texts in the original. Ms. Bergren, Mr. Haslam, Ms. King

**201A-201B. Homer: *Illiad*.** Ms. Bergren, Mr. Haslam, Ms. King

**202A-202B. Homer: *Odyssey and the Epic Cycle*.** Ms. Bergren, Mr. Haslam, Ms. King

**203. Hesiod.** Ms. Bergren, Mr. Frischer

**204. Homeric Hymns.** Ms. Bergren

**205. Seminar in Aeschylus.** Ms. Bergren, Mr. Blank, Mr. Haslam

**206A-206B. Sophocles.** Mr. Haslam, Mr. Lattimore

**207A-207B. Euripides.** Mr. Frischer, Mr. Haslam, Ms. King

**208A-208B. Aristophanes.** Ms. Bergren

**209. Seminar in Hellenistic Poetry.** Mr. Frischer, Mr. Haslam

**210. Advanced Greek Prose Composition.** Prerequisite: course 110 or equivalent. Mr. Haslam

**211A-211B. Herodotus.** Mr. Blank

**212A-212B. Thucydides.** Mr. Haslam, Mr. Lattimore

**213. Seminar in Greek Historiography.** Mr. Haslam

**214. Demosthenes.** Mr. Dyck

**215. Early Greek Orators.** Studies in the works of Antiphon, Andocides, and Lysias. Mr. Dyck

**216. Menander.** Prerequisite: reading knowledge of classical Greek. Mr. Frischer, Mr. Habinek

**217A. Greek Lyric Poetry: Archaic Lyric.** (Formerly numbered 217.) Prerequisite: consent of instructor. A study of lyric poetry of the Archaic period, both choral and monodic, with elegiac and iambic included. Ms. Bergren, Mr. Haslam

**217B. Greek Lyric Poetry: Pindar and Bacchylides.** (Formerly numbered 217.) Prerequisite: consent of instructor. A study of the choral odes of Pindar and Bacchylides, with special attention to the conventions of the epinician. Ms. Bergren, Mr. Haslam

**221. Seminar in the Pre-Socratic Philosophers.** Mr. Blank, Mr. Frischer

**222A-222B. Plato.** Ms. Bergren, Mr. Blank

**223A-223B. Aristotle.** Mr. Blank, Mr. Dyck, Mr. Frischer

**224. Seminar in Post-Aristotelian Philosophy.** Mr. Blank, Mr. Frischer

**231A-231B-231C. Seminar in Later Greek and Byzantine Literature.** 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. Mr. Blank, Mr. Dyck

**233. Byzantine Poetry.** A study of the main representatives of both religious and secular poetry. Mr. Dyck

**240A-240B. History of the Greek Language.** Prerequisite: consent of instructor. **240A** covers the linguistic history of classical Greek. In **240B** postclassical, medieval, and modern Greek are discussed.

Mr. Dyck

**241. Greek Epigraphy.** A survey of Greek historical inscriptions, chiefly Attic.

Mr. Dyck

**242. Greek Dialects and Historical Grammar.** Prerequisite: consent of instructor. The linguistic situation in early Greece. Readings in classical Greek dialectal texts. Greek grammar in the context of common Greek and Indo-European linguistics.

Mr. Puhvel

**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.

Mr. Puhvel

**244. Greek Papyrology.** Prerequisites: reading knowledge of Greek and consent of instructor. An introduction to Greek papyri, considered both as historical documents and as carriers of literature.

Mr. Haslam

**245. Greek Palaeography.** Studies in the development of the book hand in Greek manuscripts earlier than the invention of printing.

Mr. Blank

**596. Directed Individual Study or Research (2 to 8 units).**

**597. Study for M.A. Comprehensive Examination or Ph.D. Qualifying Examination (2 to 8 units).**

**599. Research for Ph.D. Dissertation (2 to 8 units).**

## Latin

### Lower Division Courses

**1. Elementary Latin.** Lecture, five hours.

**1G. Elementary Latin for Graduate Students (No credit).** Concurrently scheduled with course 14.

**2. Elementary Latin.** Lecture, five hours. Prerequisite: course 1.

**3. Elementary Latin.** Lecture, five hours. Prerequisite: course 2.

**14. Elementary Latin: Intensive (8 units).** The course covers all the declensions of nouns and adjectives, all conjugations in the indicative mood, and the primary uses of the subjunctive mood. Emphasis is on the development of the ability to read easy selections of classical prose.

**40. The Latin Element in English.** A study of the derivation and usage of English words of Latin origin; analysis into their component elements directed toward understanding of form and meaning. Knowledge of Latin is not required.

Mr. Lattimore

### Upper Division Courses

Note: Latin 3 is prerequisite to Latin 104, 105A, 107, 111, 113. One of the latter is normally prerequisite 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. This course is normally prerequisite to other courses in the Latin 100 series.

Mr. Blank, Mr. Habinek, Mr. Levine

**101. Plautus.** Mr. Habinek, Mr. Löfstedt

**102. Terence.** Mr. Löfstedt

**103. Lucretius.** Mr. Blank, Mr. Frischer, Mr. Levine

**104. Ovid.** Ms. Bergren

**105. Vergil: Selections from *Aeneid* I-VI.** (Formerly numbered 105A).

Mr. Habinek, Ms. King, Mr. Levine

**106. Catullus.** Mr. Haslam, Mr. Levine

**107. Horace: Odes and Epodes.** Mr. Frischer, Mr. Levine

**108. Roman Elegy.** Selections from Catullus, Tibullus, and Propertius.

Mr. Frischer, Mr. Habinek, Mr. Levine

**109. Roman Satire.** Selections from the *Epistles* of Horace, the *Satires* of Juvenal, and the *Epigrams* of Martial.

Mr. Levine

**110. The Study of Latin Prose.** Work in sight reading and grammatical analysis of classical prose texts; writing of classical prose.

Mr. Blank, Mr. Dyck

**111. Livy.** Mr. Frischer, Mr. Habinek, Mr. Löfstedt

**112. Tacitus.** Mr. Frischer, Mr. Habinek, Mr. Löfstedt

**113. Cicero: The Orations.** Mr. Dyck, Mr. Frischer, Mr. Habinek

**114. Roman Epistolography: Cicero and Pliny.** Mr. Blank, Mr. Dyck, Mr. Frischer

**115. Caesar.** Mr. Dyck

**116. Petronius.** Mr. Löfstedt

**117. Sallust.** Mr. Löfstedt

**118. Seneca.** A selection of Seneca's works is read in Latin.

Mr. Blank, Mr. Habinek, Mr. Löfstedt

**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. Interest is centered on unclassical features of the Latin.

Mr. Löfstedt

**130. Introduction to Medieval Latin.** Prerequisite: course 3 or consent of instructor. Reading of easy prose texts, with interest centered on basic language training.

Mr. Löfstedt

**131. Medieval Latin Prose.** Prerequisite: course 130 or consent of instructor. Extensive reading of selected texts in prose; interest is centered on the idiosyncrasies of medieval Latin.

Mr. Löfstedt

**133. Medieval Latin Poetry.** Prerequisite: one upper division language course in Latin or consent of instructor.

Mr. Löfstedt

**199. Special Studies in Latin (2 to 8 units).** Prerequisites: senior standing and 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 pre-seminar and is normally prerequisite to course B, a seminar.

**200A-200B-200C. History of Latin Literature.** Prerequisite: consent of instructor. Lectures on the history of Latin literature, supplemented on the part of the student by independent reading of Latin texts in the original.

Mr. Frischer, Mr. Habinek, Mr. Levine

**201. The Roman Epic Tradition.** 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.

Mr. Habinek

**202. Seminar in Catullus.** A detailed consideration of the entire Catullan corpus.

Ms. Bergren, Mr. Levine

**203A. Elegiac Poetry.** Mr. Frischer, Mr. Levine

**203B. Propertius.** Mr. Frischer, Mr. Habinek, Mr. Levine

**204A-204B. Vergil's *Aeneid*.** Mr. Habinek, Mr. Haslam, Ms. King

**205. Seminar in Vergil's *Bucolics*.** Mr. Frischer, Mr. Habinek, Ms. King

**206. Horace.** Mr. Frischer

**207. Roman Comedy.** Prerequisite: consent of instructor. Survey of the history of Roman comedy. Reading of one comedy by Plautus or Terence, with interest centered on language and meter.

Ms. Bergren, Mr. Habinek, Mr. Löfstedt

**208. Ovid.** Prerequisite: reading knowledge of classical Latin. A detailed study of the poetic works of Ovid. Readings in the original with discussion of the secondary literature and scholarship. May be repeated for credit with topic change.

Ms. Bergren

**209. Seminar in Roman Satire.** A detailed study of an individual satirist, with attention to his position in the development of the satirical genre in Roman literature. Choice of author varies from year to year. Close study of the text, of the characteristics of the writer as a social critic and artist, and of the contemporary literary and social environment.

**210. Advanced Latin Prose Composition.** Prerequisite: course 110 or equivalent.

Mr. Habinek, Mr. Levine

**211A-211B-211C. Seminar in the Roman Historians.** A study of considerable portions of the writings of:

**211A. Sallust.** Mr. Habinek

**211B. Livy.** Mr. Frischer, Mr. Habinek

**211C. Tacitus.** Mr. Frischer, Mr. Habinek

**215. Seminar in the Roman Novel.** Works such as Petronius' *Satyricon* and Apuleius' *Metamorphoses*: a study of the literary problems. May be repeated for credit with topic change.

Ms. Bergren, Mr. Blank, Mr. Habinek

**216. Roman Rhetoric.** 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 the rhetorical tradition. May be repeated with topic change.

Mr. Dyck, Mr. Habinek

**220. Cicero's Orations.** (Formerly numbered 220B.) Seminar, three hours.

Mr. Dyck, Mr. Habinek

**221A. Cicero's Philosophical Works.** Mr. Dyck, Mr. Frischer, Mr. Levine

**221B. Cicero: *De Natura Deorum*.** Mr. Dyck, Mr. Frischer, Mr. Levine

**222. Seminar in Roman Stoicism.** Prerequisite: reading knowledge of Greek and Latin.

Mr. Blank, Mr. Dyck, Mr. Frischer

**223. Lucretius.** Mr. Blank, Mr. Frischer

**224. Seneca.** 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.

Mr. Habinek

**231A-231B. Seminar in Medieval Latin.** Prerequisite: at least one upper division course in Latin or consent of instructor. Studies in various areas of the language and literature of medieval Latin. May be repeated for credit by consent of instructor.

Mr. Löfstedt

**232. Vulgar Latin.** Prerequisite: consent of instructor. History and characteristics of popular Latin; its development into the early forms of the Romance languages.

Mr. Löfstedt

**240. History of the Latin Language.** Prerequisite: consent of instructor. The development of Latin from the earliest monuments until its emergence in the Romance languages.

Mr. Löfstedt

**242. Italic Dialects and Latin Historical Grammar.** Prerequisite: consent of instructor. The linguistic situation in early Italy. Readings in Oscan, Umbrian, and early Latin texts. Latin grammar in the context of Italic and Indo-European linguistics.

Mr. Puhvel

**243. Seminar in Latin Palaeography.** Studies in the development of the book hand in Latin manuscripts earlier than the invention of printing.

Mr. Levine

**370. The Teaching of Latin.** Prerequisite: graduate standing or consent of instructor. Techniques for teaching; organization of courses; review of the content of the curriculum offered in junior and senior high schools.

**495. College Teaching of Latin (2 units).** Prerequisites: appointment as a teaching assistant and consent of instructor. Methodology of instruction in conjunction with classroom practice.

**596. Directed Individual Study or Research (2 to 8 units).**

**597. Study for M.A. Comprehensive Examination or Ph.D. Qualifying Examination (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

171. Old Testament: Hebrew and Septuagint Texts

272. Semitic Background of the New Testament

**Art 103A.** Greek Art

103B. Hellenistic Art

103C. Roman Art

223. Classical Art

**History 115A-115B-115C.** History of the Ancient Mediterranean World

116A-116B. History of Ancient Greece

117A-117B. History of Rome

121A-121B. Medieval Europe

123A-123B. Byzantine History

215A-215B. Seminar in Ancient History

216A-216B. Seminar in Byzantine History

222A-222B. Seminar in Medieval Intellectual History and History of Science

**Indo-European Studies 132.** European Archaeology: The Bronze Age

M150. Introduction to Indo-European Linguistics

210. Indo-European Linguistics: Advanced Course

280A-280B. Seminar in Indo-European Linguistics

**Philosophy 101A.** Plato — Earlier Dialogues

101B. Plato — Later Dialogues

102. Aristotle

## Courses on Other Campuses

Exchange and resource-sharing programs make it possible for UCLA students to take classics and classics-related courses at other schools in the Southern California area (e.g., UCSB, USI, USC). The graduate and undergraduate advisers should be consulted for specific details.

## Communication Studies (Interdepartmental)

232 Royce Hall, 825-3303

### Professor

Donald E. Hargis, Ph.D., *Emeritus*

### Associate Professors

Patrice French, Ph.D.

Neil M. Malamuth, Ph.D.

Paul I. Rosenthal, Ph.D., *Chair*

### Lecturers

Jeffrey I. Cole

I. Geoffrey Cowan, LL.B.

Diana M. Meehan, Ph.D.

Janet Weathers, Ph.D.

## Scope and Objectives

The major in communication studies is an interdisciplinary program leading to a Bachelor of Arts degree. It seeks to provide students with a comprehensive knowledge of the nature of human communication, the symbol systems by which it functions, the environments in which it occurs, its media, and its effects. Employing critical and empirical approaches, the major draws its resources from the social sciences, humanities, and fine arts. Two areas of specialty are offered: the 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 prerequisites and a minimum of 16 upper division courses as set forth below. Enrollment in the major is limited. Admission to the major will be by application to the committee in charge. Applications are available in the program office.

### Preparation for the Major

*Required:* Communication Studies 10, Linguistics 1, Psychology 10, Sociology 1. Linguistics 2 is required for students who specialize in interpersonal communication.

### The Major

*Required Core Courses:* Communication Studies 100 and 101 and one course from Anthropology M140, Communication Studies 102, or Linguistics 100.

### Specializations

**Mass Communication:** (1) Theory and method — Communication Studies 140, 152, and either Communication Studies 147 or Sociology 122, and one course from Political Science 141, Psychology 137B, or Sociology 150; (2) modes of mass communication — two courses from Communication Studies 160, 165, 170; (3) media and media history — two courses from Communication Studies 187, Theater Arts 106A, 108, 110A, and either Theater Arts 116 or Communication Studies 175; (4) electives (five courses) — two courses from Communication Studies 115, 120, 130, Psychology 135 or Sociology 154, Psychology 137A or Sociology 152, Sociology 155; three courses from one of the following groups:

(a) language theory — Communication Studies 142, 150, Linguistics 100, 170, Philosophy 172, Psychology 123; (b) American studies — English 101B, 101C, 115A, History 148A, 148B, 148C, 150A, 150B, 156A, 156B, Political Science 114A, 114B; (c) social systematics — Anthropology 133P, 133R, 135P, 142A, 142B, Sociology C144A, C144B, and either Sociology 151 or Anthropology 134.

**Interpersonal Communication:** (1) Theory — Psychology 135 or Sociology 154, Psychology 137A or Sociology 152; (2) methods — three courses from Communication Studies 115, 120, Management 182, Psychology 174; (3) heterogeneous groups communication — three courses from Anthropology 166, Communication Studies 130, Sociology 124, 155; (4) electives (five courses) — two courses from Communication Studies 147 or Sociology 122, Communication Studies 140, 152, 160, 165, 170; three courses from one of the following groups: (a) language theory — Communication Studies 142, 150, Linguistics 100, 170, Philosophy 172, Psychology 123; (b) media and media history — Communication Studies 187, Theater Arts 106A, 108, 110A, and either Communication Studies 175 or Theater Arts 116; (c) social systematics — Anthropology 133P, 133R, 135P, 142A, 142B, Sociology C144A, C144B, and either Anthropology 134 or Sociology 151.

## Lower Division Course

**10. Introduction to Communication Studies.** An introduction to the fields of mass communication and interpersonal communication. Study of modes, media, and effects of mass communication, interpersonal processes, and communication theory.

Mr. Cole

## Upper Division Courses

**100. Communication Theory.** Prerequisite: course 10, Linguistics 1, Sociology 1, Psychology 10, or consent of instructor. Analysis of the 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.

Ms. French

**101. Freedom of Communication.** Analysis of legal, political, and philosophical issues entailed in the rights of free expression, access to an audience, and access to information. Study of court decisions governing freedom of communication in the United States.

Mr. Cowan, Mr. Rosenthal

**102. The Code of Human Communication.** Prerequisite: course 10, Sociology 1, Psychology 10, Linguistics 1, or consent of instructor. The structural analysis and description of human communication codes; the development of language; characteristics of the source, channels, and destination in human communication.

Ms. French, Ms. Weathers

**115. Dyadic Communication and Interpersonal Relationships.** Prerequisite: course 100. The course emphasizes the developmental approach to the study of communication in dyadic relationships. Differences in the stages of relationships are analyzed in terms of communication rules and verbal and nonverbal messages.

Ms. Weathers

**120. Principles and Types of Group Communication.** Prerequisite: course 100 or consent of instructor. Analysis of the purposes, principles, and types of small group communication. Particular emphasis on the organization of and participation in problem solving discussion. Ms. Weathers

**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 the participation, analysis, and criticism of interethnic and interracial communications in the small group configuration. Ms. Weathers

**140. Theory of Persuasive Communication.** Prerequisite: course 100 or consent of instructor. The dynamics of communication designed to influence human conduct; analysis of the structure of persuasive discourse; integration of theoretical materials drawn from relevant disciplines of the humanities and social sciences. Mr. Rosenthal

**142. Rhetorical Theory.** Prerequisite: course 100 or consent of instructor. Survey of the major classical and neoclassical treatises on rhetoric. Analysis of the theories of Plato, Aristotle, Cicero, Quintilian, St. Augustine, Blair, Whately, Campbell, and other leading works in the theory of rhetoric.

**147. Mass Communication and Social Systems.** Prerequisite: course 100 or consent of instructor. Comparative analysis of major theories about relationships between mass media and social systems from the interpersonal to the international level; emphasis on empirical research.

**150. Analysis of Communication Content.** Prerequisite: course 100 or consent of instructor. Study of methodologies for the qualitative and quantitative analysis of the content of communications. Ms. French

**152. Analysis of Communication Effects.** Prerequisite: course 100 or consent of instructor. Survey of experimental and field research on the effects of communications. Study of source, message, and environmental factors affecting audience response. Mr. Malamuth

**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 the relationship between the mass media and aggression against women. This research considers both the role of the media as reflecting cultural values and scripts and its potentially powerful role as a socializing agent of the culture. Research on the role of individual differences among members of a culture as mediators of the impact of the media are also analyzed. Mr. Malamuth

**155. Communication Technology and Public Policy.** An introduction to modern communication technology and policy, with special attention to current policy issues, the institutions which make policy decisions, and the social, economic, and technological trends which create policy problems. Modern communication technologies surveyed include computer-communication networks, cellular communication systems, teleservices, high resolution television, and satellite communications. Mr. Cole

**160. Political Communication.** Prerequisites: courses 100 and 101, or consent of instructor. Study of the 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. Ms. Meehan

**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 the trial and appellate processes as systems of communication. Analysis of the elements of the juridical process as they affect the quality of communication content. Study of the rules of evidence, jury behavior, and the structure of legal discourse. Mr. Rosenthal

**175. Criticism and the Public Arts.** Prerequisite: course 10 or consent of instructor. An introduction to methods and problems of criticism in the public arts. Several types of critical methods are studied: formalistic, analogue, pragmatic, and aesthetic criticism. Topics include the definition of art and criticism, the aesthetic media, genre and resources of film, television, theatre, and public discourse, the varieties of critical method, the problems of critical judgment.

**187. Ethical and Policy Issues in the Institutions of Mass Communication.** Prerequisites: courses 10 and 101. An intensive examination of the ethical and policy issues arising from the interaction of media institutions (print, film, broadcasting, and the new technologies) and societal institutions (Congress, federal agencies, courts, the Presidency, schools, churches, political action groups, advertisers, and audiences). Mr. Cole

**197. Undergraduate Honors Proseminar.** Prerequisites: senior standing, 3.5 GPA in communication studies major, and 3.3 GPA overall. Limited enrollment. Variable topic course involving specialized study of selected aspects of the field of human communication.

**199. Special Studies (2 to 8 units).** To be arranged with faculty member who will direct the study. Prerequisites: senior standing and consent of instructor. A course of independent study for seniors who desire an intensive or specialized investigation of selected research topics.

**199F. Field Studies in Communication.** (Formerly numbered 185.) Discussion, one hour; fieldwork, seven hours. Prerequisites: senior standing in communication studies and consent of instructor. Students participate in seminar sessions and in approved community settings. May be repeated once for credit. P/NP grading. Ms. Gregory

**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. A course of independent study for honors undergraduates who desire an intensive or specialized investigation of selected research topics.

## Comparative Literature (Interdepartmental)

334D Royce Hall, 825-7650

### Professors

Michael J. B. Allen, Ph.D. (English)  
Ehrhard Bahr, Ph.D. (German)  
Amin Banani, Ph.D. (Persian and History)  
Arnold J. Band, Ph.D. (Hebrew and Comparative Literature)  
A. R. Braunnmuller, Ph.D. (English)  
Daniel G. Calder, Ph.D. (English)  
Margherita Cottino-Jones, Ph.D. (Italian)  
Eric Gans, Ph.D. (French)  
Hassan el Nouty, Docteur ès Lettres (French)  
Kenneth E. Harper, Ph.D. (Russian Literature)  
Claude L. Hulet, Ph.D. (Spanish and Portuguese)  
Carroll B. Johnson, Ph.D. (Spanish)  
Richard D. Lehan, Ph.D. (English)

Gerardo Luzuriaga, Ph.D. (Spanish)  
Vladimir Markov, Ph.D. (Russian Literature)  
Maximilian E. Novak, D.Phil., Ph.D. (English)  
Joseph N. Riddel, Ph.D. (English)  
Ross P. Shideler, Ph.D. (Scandinavian and Comparative Literature), Chair  
Stephen I. Yenser, Ph.D. (English)  
Pier-Maria Pasinetti, Ph.D., Emeritus (Italian and Comparative Literature)

### Associate Professors

Ben Befu, Ph.D. (East Asian Languages and Cultures)  
Frederick L. Burwick, Ph.D. (English)  
Edward I. Condren, Ph.D. (English)  
Michael Heim, Ph.D. (Czech and Russian Literature)  
Albert D. Hutter, Ph.D. (English)  
Robert M. Maniquis, Ph.D. (English)  
Stephen D. Werner, Ph.D. (French)

### Assistant Professors

Shuhsi Kao, Ph.D. (French)  
Katherine C. King, Ph.D. (Classics and Comparative Literature)  
Kathleen Komar, Ph.D. (German and Comparative Literature)  
Lucia Re, Ph.D. (Italian and Comparative Literature)

## Scope and Objectives

UCLA's graduate Comparative Literature Program makes it possible to study several literatures rather than just one. Students skilled in foreign languages may select from UCLA's range of literature courses and choose to emphasize any period or genre. In the program, students combine work on the major literary texts and traditions of their chosen literatures with the study of literary theory and criticism.

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. Graduate degree programs, leading to the Master of Arts and Ph.D. degrees in Comparative Literature, ordinarily prepare students for careers in college and university teaching and research. Like other liberal arts subjects, however, comparative literature can also serve as a foundation for careers in a variety of international activities.

## Master of Arts Degree

### Admission

A bachelor's degree in literature, ancient or modern, is a prerequisite for admission to the program. Students not having a literature major in their B.A. program will be 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, and submit three letters of recommendation. Applicants should have literary proficiency in one foreign language and at least an elementary knowledge of a second.



## Areas of Study

Your study plan should combine work in the major and minor literatures by focusing on a limited area in which these literatures may be explored. The area may be a literary period (e.g., Romanticism), a genre (e.g., the novel), or a theoretical problem.

The major literature is the area of your primary concentration. You specialize in one historically defined period (e.g., 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, you focus on a period comparable to the area of specialization in the major literature, although you may not have as much historical depth and breadth as in the major literature.

## Foreign Language Requirement

Literary proficiency in the major and minor literatures is an essential prerequisite for courses and degrees in comparative literature. You should be able to take graduate classes conducted in the languages of your specialization, speak the major foreign language adequately, and read literary texts in that language with "literary proficiency" (i.e., with sensitivity to stylistic nuances).

Before completing the M.A., you must demonstrate a knowledge of two foreign languages. Proficiency in one must be certified by completing two or more upper division and/or graduate literature courses in the appropriate language department. (You must prove more than elementary language competency in order to take these courses.) The second language requirement may be satisfied either by completing two years of language classes, by taking one upper division literature class, or by passing the Educational Testing Service foreign language examination with a score of 600 or better. Translation examinations may be administered by departmental members in languages for which no ETS examination is available.

## Course Requirements

The following 12 courses are the minimum course requirements. Some students will take extra courses to make up deficiencies.

- (1) Four courses from the following: Comparative Literature 200 and one course from 201, 202, 204; the comparative study of one genre (e.g., the novel, the epic, the lyric, the drama); the comparative study of one period or movement (e.g., baroque, Romanticism).
- (2) Five courses (three must be graduate, two may be upper division) in your major literature.
- (3) Three courses, either graduate or upper division, in your minor literature. You should study periods, genres, or problems in the minor literature which lend themselves to comparison with similar elements in your major literature.

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 and 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: you may receive an M.A. degree and be allowed to progress toward the Ph.D., be granted a terminal M.A., or fail the examination altogether. The program allows a maximum of two attempts to pass the M.A. examinations.

The written examinations test your 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 10 to 15 authors in the major literature and the works of at least five 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.

## Ph.D. Degree

### Admission

For entrance into the Ph.D. program, an M.A. degree in Comparative Literature is normally required. Students with 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. Applicants should submit three letters of recommendation. Students 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 work in the major and 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.

### Foreign Language Requirement

You must have literary proficiency in at least two foreign languages before taking the qualifying examination. A reading knowledge of a third foreign language is strongly recommended. Two of the three languages offered for the

Ph.D. must be from different language groups (e.g., Romance and Germanic, English and Slavic). If you intend to offer three literatures written in foreign languages for your Ph.D. degree, you are expected to have literary proficiency in the three pertinent foreign languages. A classical language is usually necessary for anyone majoring in a period prior to the 19th century. The language requirements for the Ph.D. are to be fulfilled in the same way as those for the M.A. degree.

## Course Requirements

All students entering with an M.A. must take a minimum of six graduate courses, and often up to 12 courses. Those whose M.A. is not in Comparative Literature at UCLA will have to 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 will be 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, you are strongly advised to take at least two and usually three courses in each of your literatures.

If you have taken your M.A. in Comparative Literature at UCLA, two of the required graduate courses should be comparative literature courses and one of the two should have a theoretical orientation (such as Comparative Literature 202, 203, 204). Three courses in the second minor are normally recommended.

## Teaching Experience

Teaching experience is not required but is highly recommended.

## 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. A normal reading list for the major literature consists of approximately 50 to 60 primary works. The reading list for each minor literature focuses on the period of specialization and consists of approximately 25 to 30 primary works. More information and examples of reading lists are on file in the program office.

The written examination for the major is divided into two parts, one designed to demonstrate broad historical knowledge, the other to demonstrate a more specific knowledge of your special period or problem. A three- to four-hour written examination is taken in each of the minor literatures. The University Oral Qualifying Examination must be taken within 60 days after you pass the last written examination and covers three areas:

- (1) Competence as determined by the reading lists and the written examinations.



(2) Both a familiarity with major critical texts pertaining to the reading lists and competence in general literary theory.

(3) The proposed dissertation topic based on the prospectus.

The program allows a maximum of two attempts to pass the Ph.D. examinations.

The doctoral dissertation must demonstrate original critical work in the field. Although a topic comparing literatures is commonly undertaken, comparative literature students may write a dissertation on a single subject in a single field provided that their wide range of knowledge is demonstrated by the quality of the work.

## Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Graduate Courses

**200. The Methodology of Comparative Literature (6 units).** Seminar, four hours. Prerequisite: consent of instructor. A study of the methodology of comparative literature and the theory of literature.

**201. Contemporary Theories of Criticism.** Prerequisite: course 200 or equivalent. An advanced course in the theory of literature focusing on structuralist, psychoanalytic, and Marxist approaches.

**202. Problems in the Theory of Literature.** Prerequisite: reading knowledge of French or German and course 201 or equivalent. A study of specific topics in the theory of literature for advanced students in criticism and literary theory. May be repeated for credit.

**203. Problems of the Sign in Literature.** An inquiry into the 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 the "sciences" envisioned by Saussure (semiology) and Peirce (semiotics) and propounded by contemporary theorists such as Barthes, Hjelmslev, and Greimas. Ms. Kao

**204. Psychoanalytic Approaches to Literature.** Prerequisite: course 200 or the equivalent criticism course in English. A study of the development of modern psychoanalytic approaches to literature, with particular stress on affective theories of criticism. Readings include Freud and the early psychoanalytic critics, contemporary psychoanalytic critics of literature, and modern British and American psychoanalytic theorists (Winnicott, Schafer) whose work is applicable to literary theory. Mr. Hutter

**C205. The Comic Spirit.** Prerequisite: reading knowledge of one appropriate foreign language. Literary masterpieces, both dramatic and nondramatic, selected to demonstrate the varieties of comic expression. May be concurrently scheduled with Humanities C105. Graduate students are required to prepare papers based on texts read in the original languages and to meet as a group one additional hour each week. Mr. Brand

**C207. The Classical Tradition: Epic.** Seminar, three hours. Prerequisite: reading knowledge of Greek, Latin, or Italian. The *Iliad*, the *Odyssey*, the *Aeneid*, the *Gerusalemme Liberata*, and *Paradise Lost* are analyzed both in relation to their contemporary societies and to the literary traditions. Emphasis is on how poets build on the work of their predecessors. May be concurrently scheduled with Humanities C107. Graduate students are required to prepare papers based on texts read in the original languages and may meet as a group one additional hour each week. Ms. King

**C209. The Crisis of Consciousness in Modern Literature.** 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 the works of Kafka, Rilke, Woolf, Sartre, and Stevens. May be concurrently scheduled with Humanities C109. Graduate students are required to prepare papers based on texts read in the original languages and to meet as a group one additional hour each week. Ms. Komar

**C211. The Classical Tradition: Tragedy.** 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. May be concurrently scheduled with Humanities C111. Graduate students are required to prepare papers based on texts read in the original languages and may meet as a group one additional hour each week. Ms. King

**230. Translation Workshop.** Prerequisites: solid reading knowledge of at least one foreign language and consent of instructor. Open to qualified undergraduates with proper language preparation. The 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 the discretion of the participants. Mr. Heim

**C239. Early Medieval Literature.** Prerequisite: reading knowledge of one appropriate foreign language. The course consists of a survey of the Latin and Germanic literatures from the fall of Rome to the beginning of the 12th century. May be concurrently scheduled with Humanities C139. Graduate students are required to write papers based on texts read in the original languages and may meet as a group one additional hour each week. Mr. Calder

**C240. Medieval Epics.** Prerequisite: reading knowledge of one appropriate foreign language. The seminar considers five medieval epics: *Beowulf*, *El Cid*, *Chanson de Roland*, *Nibelungenlied*, and *Njalssaga*. There are two objectives: first, a critical understanding of each work, and second, an understanding of the nature of epic literature. Assignments consist of an extended seminar paper and short oral reports. May be concurrently scheduled with Humanities C140. Graduate students are required to prepare papers based on texts read in the original languages. Mr. Condren

**C241. The Literary Mediation of History in the Renaissance.** Seminar, three hours. Prerequisite: reading knowledge of one appropriate foreign language. An analysis of the presence and the treatment of history in the rhetoric of Renaissance authors ranging from the Italian humanists to Machiavelli and Shakespeare. Other authors include Poliziano and Lorenzo de' Medici. May be concurrently scheduled with Humanities C141. Graduate students are required to prepare papers based on texts read in the original languages and may meet as a group one additional hour each week. Ms. Re

**C245. Renaissance Drama.** Prerequisite: reading knowledge of one appropriate foreign language. The course offers a broad introduction to the subject matter and types of plays in the Renaissance. Historical and literary influences on the plays are considered. Readings include works of such dramatists as Tasso, Machiavelli, Lope de Vega, Racine, Jonson, Shakespeare. May be concurrently scheduled with Humanities C145. Graduate students are required to prepare papers based on texts read in the original languages and to meet as a group one additional hour each week. Mr. Braunmüller

**C268. Romantic Autobiography.** Discussion, three hours. The course traces the evolution of the autobiography from spiritual (Augustine) and secular (Cellini) sources to the transition in the 18th century which blended features of the epic poem and the quest-romance. Wordsworth's *Prelude* came to represent the best example of this mixture. Major examples of the Romantic autobiography to be studied include Rousseau's *Confessions*, Wordsworth's *Prelude*, and Goethe's *Wilhelm Meister's Apprenticeship*. Later novels that develop and extend the genre include Joyce's *Portrait of the Artist as a Young Man* and Proust's *Swann's Way*. May be concurrently scheduled with Humanities C188. Ms. Packer

**C270. The Dream in English and German Romantic Literature.** Lecture, three hours; discussion, one hour. Prerequisite: reading knowledge of one appropriate foreign language. A study of the use of the dream as a standard narrative technique in English and German Romantic literature. May be concurrently scheduled with Humanities C170. Graduate students may be required to prepare papers based on texts read in the original languages and to meet as a group one additional hour each week. Mr. Burwick

**271. Dramatic Theory and Criticism in German and English Romanticism.** Prerequisite: reading knowledge of German. The seminar examines the generic conception of drama in the critical essays of the Schlegels, Tieck, Jean Paul, Coleridge, De Quincey, and Hazlitt. It gives particular attention to the role of the actor and the idea of dramatic action as discussed by the critics. Mr. Burwick

**C272. The Grotesque in Romantic Literature and Art.** Prerequisite: reading knowledge of one appropriate foreign language. A study of the grotesque in the visual and verbal arts of the Romantic period; interpretation addresses the aesthetics of tragic-comic interaction, the demonic vision, and the satirical sketches of man's abnormality and perversity. May be concurrently scheduled with Humanities C172. Graduate students are required to prepare papers based on texts read in the original languages and to meet as a group one additional hour each week. Mr. Burwick

**C273. Theory and Texts of the Fantastic.** Seminar, three hours. Prerequisite: reading knowledge of one appropriate foreign language. An 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 Hoffman, Nerval, James, Poe, Borges, Casares, Cortazar, Landolfi, and Calvino. May be concurrently scheduled with Humanities C173. Graduate students are required to prepare papers based on texts read in the original languages and may meet as a group one additional hour each week. Ms. Re

**274. The Search for Organic Forms.** Prerequisite: reading knowledge of French or German. A seminar devoted to theories of the "organic" in the 18th and 19th centuries, with special emphasis on Rousseau and Goethe. A large part of the course is given to studies of the transition made between theories of nature and theories of state. Mr. Maniquis

**C275. The 19th-Century Novel.** Seminar, three hours. Prerequisite: reading knowledge of French or German. A comparative study of the 19th-century novel in England and on the continent. Novels are selected so as to allow the seminar to concentrate on a particular tradition or critical problem. May be concurrently scheduled with Humanities C175. Mr. Lehan

**C276. Fiction and History.** Seminar, three hours. Prerequisites: upper division standing and literature major, or consent of instructor. The course analyzes the use of historical events, situations, and characters in literary works of the Renaissance and/or the modern period. Texts and individual assignments range from Renaissance historical narratives (the Italian Humanists, Machiavelli) to 19th- and 20th-century novels by authors such as Stendahl, Verga, Tomasi di Lampedusa, Carpentier, and Kundera. Use of fictional methods by historians may also be analyzed. Emphasis is on how aesthetic, ideological, and political factors influence the authors' choice and use of historical material. May be concurrently scheduled with Humanities C176. Graduate students are required to prepare papers based on texts read in the original languages. Mr. Pasinetti, Ms. Re

**C278. Darwinism and Literature.** Seminar, three hours. Prerequisites: graduate standing or consent of instructor and reading knowledge of one appropriate foreign language. The course studies the impact of Darwin's theories on European and American literature. While texts include major works in the development of naturalism, such as novels by Zola, Hardy, Crane, or Dreiser and plays by Strindberg and Ibsen, the course moves forward into the continuing influence of other "determinist" and behaviorally oriented theories in works by authors such as Mann, Sartre, Camus, Stevens, and Skinner. May be concurrently scheduled with Humanities C178. Graduate students are required to prepare papers based on texts read in the original languages and may meet as a group one additional hour each week. Mr. Shideler

**C280. The Symbolist Tradition in Poetry.** Prerequisite: reading knowledge of either French or German. A study of the symbolist tradition in 19th- and 20th-century English, French, and German poetry. May be concurrently scheduled with Humanities C180. Graduate students are required to prepare papers based on texts read in the original languages and may meet as a group one additional hour each week.

Mr. Shideler  
**C281. Poetry and Poetics of the Post-Symbolist Period.** Prerequisite: reading knowledge of French or German. A study of some of the dominant poetic trends and figures in American and European poetry in the first half of the 20th century, including such surrealists as Apollinaire and Breton, imagists, and major individual poets such as Pound, Eliot, Valery, Rilke, George, and Stevens. May be concurrently scheduled with Humanities C181. Graduate students are required to prepare papers based on texts read in the original languages and may meet as a group one additional hour each week.

Ms. Komar, Mr. Shideler  
**292. The Psychological Novel.** Prerequisites: major in literature and reading knowledge of French. A comparative study of French and English novels which both precede and follow the development of psychoanalysis. Selected readings of Freud are assigned in addition to the required fiction. Mr. Hutter

**C297. The Mystery Novel.** Prerequisite: reading knowledge of French. A study of mystery and detective fiction in England, France, and the United States. The origin, form, and historical significance of mystery fiction are developed through close readings of selected works. May be concurrently scheduled with Humanities C117. Graduate students are required to prepare papers based on texts read in the original languages and to meet as a group one additional hour each week. Mr. Hutter

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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 the Teaching of Literature and Composition (2 units).** Lecture, three hours. Seminar on problems and methods of presenting literary texts as exemplary materials in the teaching of composition. The course deals with theory and classroom practice and involves individual counseling and faculty evaluation of TAs' performance. May not be applied toward the M.A. course requirements. S/U grading.

**596. Directed Individual Study or Research (2 to 12 units).** Prerequisite: graduate standing in comparative literature. The course is 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 examination. 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.

## Computing, Program in

6375 Math Sciences, 206-1286

### Additional Coursework for Students Interested in Computing

The Program in Computing is not a major, but a supplement to existing Letters and Science majors. The purpose of the program is to offer all students an opportunity to obtain elementary education in computer science.

Program in Computing 1 is designed for students who wish a broad, general introduction to the topic of computers and computation. It is also strongly recommended for those who wish to take course 3 or 10, but who have no prior experience in computing.

The balance of the curriculum is designed for several constituencies:

(1) Letters and Science majors who wish to obtain an extensive education in basic computer science and then apply this knowledge to their discipline should take Program in Computing 10, 20, and, depending on the advice of their major department, either course 30 or 60 or both.

(2) Pre-mathematics/computer science majors who wish to advance to the major should take Program in Computing 10, 20, 30, and the related required courses in mathematics and physics.

(3) Physical science students who would like one course in programming should take either Program in Computing 3 (uses Fortran) or 10 (uses Pascal), on the advice of their major department.

## Lower Division Courses

**1. Introduction to Computers and Computing.** Lecture, four hours; discussion, one hour; computer terminals, five hours. Students with credit for Computer Science 5 will not receive credit for this course. Fundamentals of computers and computing: machine organization and computer hardware; algorithm and software development; data representation; social impact of computing; contemporary computer applications.

**3. Introductory Fortran Programming.** Lecture, four hours; discussion, two hours; computer terminals, ten hours. Students with credit for Computer Science 10F will not receive credit for this course; students with credit for course 10 or Computer Science 10C or 10S will receive only two units of credit for this course. Basic principles of programming, using Fortran as the example language. A terminal course intended for physical science 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 10 rather than this course.

**10. Introduction to Programming.** Lecture, four hours; discussion, two hours; computer terminals, ten hours. Recommended prerequisite for students with no prior computing experience: course 1. Students with credit for Computer Science 10C, 10F, or 10S will not receive credit for this course; students with credit for course 3 will receive only two units of credit for this course. Basic principles of programming, using Pascal as the example language: algorithmic, procedural problem solving; program design and development; control structures and data structures; human factors in programming and program design.

**20. Intermediate Programming.** Lecture, four hours; discussion, two hours; computer terminals, fifteen hours. Prerequisite: course 10 or Computer Science 10C, 10F, or 10S. Students with credit for Computer Science 20 will not receive credit for this course. Design and development of programs solving problems of intermediate complexity drawn from various disciplines, using one or more high-level languages. Programming techniques, algorithm analysis, and data structures. Students develop programming sophistication through intensive individual laboratory work.

**30. Machine Organization and Assembly Language Programming.** Lecture, four hours; discussion, two hours; computer terminals, fifteen hours. Prerequisite: course 20 or Computer Science 20. Students with credit for Computer Science 30 will not receive credit for this course. 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, four hours; discussion, one hour; computer terminals, ten hours. Prerequisites: course 20, 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.

## Cybernetics (Interdepartmental)

4731 Boelter Hall, 825-4033

### Scope and Objectives

The major in cybernetics is designed primarily for highly motivated undergraduates interested in interdisciplinary activities in life sciences, behavioral sciences, and engineering and computer sciences. Preparation for the major consists of a broad foundation in basic sciences — chemistry, biology, physics, and mathematics, plus introduction to psychology and computing. The major itself provides an introduction to modeling, information processing, control and system analysis, with emphasis on quantitative ideas and methodologies. Mathematical and other analytical skills are essential in the major.

Cybernetics majors have three options for in-depth studies: life sciences, behavioral sciences, or engineering and applied mathematical sciences. 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

#### Pre-Cybernetics Major

You may apply for the pre-cybernetics 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. All "Preparation for the Major" courses, including mathematics, must be completed with at least a 3.0 GPA. Transfer students must meet the same academic requirements, based on all courses transferred from another institution which satisfy premajor requirements.

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).

#### Preparation for the Major

**Required:** A minimum of 72 units (18 full courses), including Chemistry 11A, 11B/11BL, 11C/11CL, 21, 23; Biology 5, 7; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 6A, 6B, and 6C, or 8A, 8B, and 8C; Psychology 10; Computer Science 10C or 10F or 10S. Additional recommended course lists are available in the program office and/or the College Counseling Service in the College of Letters and Science.

### The Major

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 completed with a grade of C or better.

**Methodology Core:** Four subject areas as follows:

(1) Two courses in probability and statistics from one of the following groups: (a) Mathematics 152A and 152B, or (b) Mathematics 150A or System Science 120A and either Mathematics 150B or 152B, or (c) Public Health 101A and 101B.

(2) Two courses in signals and control systems (one from each group): (a) System Science 121A or 121C and (b) System Science 122A or Mechanical, Aerospace, and Nuclear Engineering 171A.

(3) One course in modeling and computer simulation: Computer Science M196B.

(4) One overview course: Computer Science 196A.

**Applications/Specialization Areas:** A minimum of seven courses in either life sciences, behavioral sciences, or engineering and applied mathematics. 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, linguistics, and economics. 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.

## Diversified Liberal Arts (Interdepartmental)

A316 Murphy Hall, 825-1965

### Undergraduate Certificate Program

The Diversified Liberal Arts Program (DLAP) is not a major, but a special certificate program through which you may earn a credential to teach in California elementary schools. To

earn the credential, you must complete the Teacher Credential Program in the Graduate School of Education. In addition, you must either earn a satisfactory score on the Commons Section of the National Teachers Examination or complete the DLAP in the College of Letters and Science.

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) English, (2) mathematics and the physical or life sciences, (3) social sciences, (4) humanities, fine arts, and foreign language.

Requirements for one of these areas will normally be satisfied by courses taken for your major; in addition, you must complete seven courses (28 units) in each of two other areas and eight courses (32 units) in a fourth area. A grade of C or better must be earned in all courses specifically required for the program (i.e., English 120A, Mathematics 38A-38B, 104, History 7A, 7B). A C — or a Passed grade is not acceptable in these courses. A minimum C (2.0) grade-point average is required in each of the four areas.

Courses in divisions outside the major, which are required as preparation for or as part of the major, may be applied toward the area course requirements. However, no course may be applied toward more than one area. You are expected to satisfy breadth or general education requirements of the College of Letters and Science, but courses used to satisfy these requirements may also be applied toward the Diversified Liberal Arts Program.

If you plan to pursue the program, you should begin to take courses in your freshman year that will fulfill these requirements. 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 will certify 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, contact a counselor in the College of Letters and Science, A316 Murphy Hall (825-3382). For information regarding the Teacher Credential Program in the Graduate School of Education, see a counselor in 201 Moore Hall (825-8326).

### Area 1. English

**Composition and Grammar (Required):** Two courses: English 120A plus one course in satisfaction of the English Composition requirement. If you wish to complete the Area 1 requirements with additional composition and grammar, the courses must be selected from English 130, Linguistics 1, 2, 100.

**Literature (Required):** One course from English 10A, 10B, 10C, 70, 75, 80, 85, 90, 112, 113, Humanities 1A, 1B, 1C, or any other upper division courses in English literature for which you have satisfied the prerequisites. You may complete more than one course from this list to satisfy the Area 1 course requirement.

**Speech (Required):** One course from Communication Studies 10, 100, Speech 1, 2, 107. You may complete more than one course from this list to fulfill the Area 1 course requirement.

## Area 2. Mathematics and the Physical or Life Sciences

**Mathematics (Required):** Mathematics 38A-38B and 104. Substitutions of other courses in mathematics may be made with the written consent of the Department of Mathematics and the College of Letters and Science.

**Physical or Life Sciences (Required):** A minimum of 12 units in physical sciences and/or life sciences, apart from mathematics.

The remaining courses for Area 2 may be selected from any courses in the physical or life sciences that satisfy breadth or general education requirements (mathematics courses may be included).

## Area 3. Social Sciences

**History (Required):** One course from History 7A, 7B. Other courses which may satisfy the Area 3 requirement are those listed as fulfilling the social science breadth or general education requirements.

## Area 4. Humanities, Fine Arts, and Foreign Language

Although there are no specific course requirements, courses applied toward this area must be selected from those courses listed as fulfilling the humanities breadth or general education requirements. The following may also be applied toward Area 4: any courses in foreign language; Dance 1A, 1B, 1C; Music 1A, 1B, 113A, 113B; Theater Arts 118A, 118B, 119A.

# Earth and Space Sciences

3806 Geology, 825-3880

### Professors

Orson L. Anderson, Ph.D. (*Geophysics*)  
 Arthur L. Boettcher, Ph.D. (*Geochemistry and Geophysics*)  
 Friedrich H. Busse, Ph.D. (*Geophysical Fluid Dynamics*)  
 Donald Carlisle, Ph.D. (*Geology and Mineral Resources*)  
 John M. Christie, Ph.D. (*Geology*)  
 Paul J. Coleman, Jr., Ph.D. (*Geophysics and Space Physics*)

Donald J. DePaolo, Ph.D. (*Geochemistry and Geology*)  
 Wayne A. Dollase, Ph.D. (*Geology*)  
 W. Gary Ernst, Ph.D. (*Geology and Geophysics*)  
 Clarence A. Hall, Jr., Ph.D. (*Geology*)  
 David D. Jackson, Ph.D. (*Geophysics*)  
 Isaac R. Kaplan, Ph.D. (*Geology and Geochemistry*), Vice Chair  
 William M. Kaula, M.S. (*Geophysics*), Chair  
 Margaret G. Kivelson, Ph.D. (*Space Physics*)  
 Helen Tappan Loeblich, Ph.D. (*Paleontology and Geology*)  
 Robert L. McPherron, Ph.D. (*Space Physics and Geophysics*)  
 Clemens A. Nelson, Ph.D. (*Geology*)  
 Gerhard Oertel, Dr.rer.nat. (*Geology*)  
 John L. Rosenfeld, Ph.D. (*Geology*)  
 Christopher T. Russell, Ph.D. (*Space Physics*)  
 J. William Schopf, Ph.D. (*Paleobiology*)  
 Gerald Schubert, Ph.D. (*Geophysics and Planetary Physics*)  
 Ronald L. Shreve, Ph.D. (*Geology and Geophysics*)  
 John T. Wasson, Ph.D. (*Geochemistry and Chemistry*)  
 Robert E. Holzer, Ph.D., Emeritus  
 Kenneth D. Watson, Ph.D., Emeritus

### Associate Professors

George Peter Bird, Ph.D. (*Geophysics and Geology*)  
 Paul M. Davis, Ph.D. (*Geophysics*)  
 William I. Newman, Ph.D. (*Planetary Physics*)  
 Walter E. Reed, Ph.D. (*Geology*)

### Assistant Professors

Mark D. Barton, Ph.D. (*Geochemistry and Geology*)  
 Michael J. DeNiro, Ph.D. (*Geochemistry*)

### Lecturers

Lawrence C. Bonham, Ph.D. (*Petroleum Geology*)  
 Robert E. Jones, B.S. (*Geology*)  
 Paul M. Merfield, Ph.D. (*Environmental Geology*)  
 Floyd F. Sabins, Jr., Ph.D. (*Geology*)  
 Gerhard Stummer, B.S. (*Geology*)  
 Takeo Susuki, D.Sc. (*Geology*)

### Adjunct Associate Professor

Raymond V. Ingersoll, Ph.D. (*Geology*)

## Scope and Objectives

The disciplines of geology, geochemistry, and geophysics are concerned with the structure and evolution of the solar system, the 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, the earth's interior, planetary physics, space plasmas, and economic geology.

The variety of techniques applied lead to several specializations within the three main disciplines. Students completing their studies with a B.S. or M.S. degree usually are employed by industry. The greatest number go to oil companies, but many are also employed in other types of mineral exploitation, construction, and environment-related activities.

## Bachelor of Science in Geology

### Engineering Geology Specialty

**Preparation for the Major:** Earth and Space Sciences 1, 51A, 51B, 51C; Biology 2; Chemistry 11A, 11B/11BL; Mathematics 31A, 31B, 32A, 33A; Physics 8A, 8B/8BL, 8C/8CL; Program in Computing 3 (recommended) or 10 or more advanced placement by examination.

**The Major:** Earth and Space Sciences 103A, 103B, 111A, 111B, 112, 121A-121B, 135, M139; Civil Engineering 108, 184A, 185A, 185B, 185L; one course from Earth and Space Sciences 136C, 137, 141, 150, Geography 100, Civil Engineering 184B, 184D.

### Geochemistry Specialty

**Preparation for the Major:** Earth and Space Sciences 1, 51A, 51B, 51C; Biology 2; Chemistry 11A, 11B/11BL, 11C/11CL, 21; Mathematics 31A, 31B, 32A, 33A (32B, 33B recommended); Physics 8A, 8B/8BL, 8C/8CL (8D recommended); Program in Computing 3 (recommended) or 10 or more advanced placement by examination.

**The Major:** Earth and Space Sciences 103A, 103B, 111A, 111B, 130, 131; Chemistry 110A, 110B, 114 (or Chemistry 23 and 25 or 184 or Earth and Space Sciences 132); three courses from Chemistry 23, Earth and Space Sciences 112, 119, 121A, 121B, 128A, 128B; two earth and space sciences or chemistry courses on consent of adviser.

### Geology Specialty

**Preparation for the Major:** Earth and Space Sciences 1, 2, 51A, 51B, 51C; Biology 2; Chemistry 11A, 11B/11BL, 11C; Mathematics 31A, 31B, 32A; Physics 8A, 8B/8BL, and 8C/8CL or 6B; Program in Computing 3 (recommended) or 10 or more advanced placement by examination.

**The Major:** Earth and Space Sciences 103A, 103B, 103C, 111A, 111B, 112, 115, 121A-121B, 135, and four additional courses from 114, 119, 122, 128A, 128B, 130, 131, 132, 133, 136C, 137, M139, 141, 144, 150.

### Nonrenewable Natural Resources Specialty

**Preparation for the Major:** Earth and Space Sciences 1, 2, 51A, 51B, 51C; Biology 2; Chemistry 11A, 11B/11BL, 11C; Mathematics 31A, 31B, 32A; Physics 8A, 8B/8BL, and 8C/8CL or 6B; Program in Computing 3 (recommended) or 10 or more advanced placement by examination.

**The Major:** Earth and Space Sciences 103A, 103B, 103C, 111A, 111B, 112, 121A-121B, 128A or 128B, 135, 136C, 137, and two additional courses from 128A or 128B, 138, M139, 141, 150.

## Paleobiology Specialty

**Preparation for the Major:** Earth and Space Sciences 1, 2, 51A, 51B, 51C; Biology 5, 5L, 6; Chemistry 11A, 11B/11BL, 11C/11CL, 21, 23; Mathematics 31A, 31B, and 32A, or 3A, 3B, and 32A; Program in Computing 3 (recommended) or 10 or more advanced placement by examination.

**The Major:** Earth and Space Sciences 103A, 103B, 111A, 111B, 112, 115, 132; seven courses from Chemistry 25, Public Health 101A, 101B, Biology 100, 101, 102, 103, 105, 110, 111, 120, 122, 123, 164, 165, Earth and Space Sciences M117, M118, 119, 121A, 121B, 133, 141, 144.

## Bachelor of Science in Geophysics

### Applied Geophysics Specialty

**Preparation for the Major:** Earth and Space Sciences 1, 51A, 51B, 51C; Chemistry 11A; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A, 8B/8BL, 8C/8CL, 8D/8DL; Program in Computing 3 (recommended) or 10 or more advanced placement by examination.

**The Major:** Earth and Space Sciences 103A, 111A, 111B, 112, 122, 136A, 136B, 136C; Physics 105A, 105B, 110A, 110B, 114; two courses from Earth and Space Sciences 101, 103B, 131, 137, M139, M154, 205, 265, Mathematics 140A-140B-140C, 152A-152B, Physics 112, 115A, 116, 131, 132, or other courses on consent of adviser.

### Geophysics and Space Physics Specialty

**Preparation for the Major:** Earth and Space Sciences 1, 9; Chemistry 11A, 11B/11BL, 11C; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A, 8B/8BL, 8C/8CL, 8D/8DL; Program in Computing 3 (recommended) or 10 or more advanced placement by examination.

**The Major:** Earth and Space Sciences 122, M140, M154; Physics 105A, 105B, 110A, 110B, 112; Physics 131 or Mathematics 145; three courses from Earth and Space Sciences 101, 119, 131, 136A, 136B, 150, 205, 233, Atmospheric Sciences 153, one of Mathematics 140A, 140B, or 140C; three science electives on consent of adviser.

Students planning to do graduate work in specialized careers in earth science 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 will provide guidelines in selecting upper division courses.

Qualified undergraduate students may, on consent of their advisers and the instructor, take Earth and Space Sciences graduate courses numbered from 200A through 250.

## 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 Program 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 quarters (eight units) of Earth and Space Sciences 199H leading to the preparation of a satisfactory honors thesis. Students demonstrating exceptional ability will be awarded highest honors.

## Graduate Study

### Admission

Application may be made for admission to any quarter. Graduate Record Examination scores are required; the examination should be taken at least six weeks before the deadline. Also required are three letters of recommendation which should be sent to the Graduate Adviser, Department of Earth and Space Sciences, UCLA, Los Angeles, CA 90024. In addition to the University application form, a separate departmental application form is required. This form, and a brochure giving information about the department, may be obtained from the graduate adviser. Students who wish to apply for fellowships or teaching assistantships should be aware that these are allocated in March for the following academic year; completed applications should be received by February.

### Major Fields and Subdisciplines

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. 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. The program in geology offers study in geomorphology, glaciology, micropaleontology, mineral deposits, mineralogy, nonrenewable natural resources, organic geochemistry, paleobiology, petrology, sedimentology, stratigraphy, structural geology, tectonophysics, and other fields. The program in geophysics and space physics offers study in applied geophysics, the earth's interior (seismology, gravity, thermal regime, geomagnetism, tectonics), geophysical fluid dynamics (turbulence, rotating systems, stability, hydromagnetism), plan-

etology (orbital dynamics, planetary interiors, surfaces and atmospheres, solar-system origin), and space physics (magnetosphere, radiation belts, solar wind, magnetic fields, cosmic rays). Other comparable areas of study are also possible.

## Foreign Language Requirement

Advising committees may require one or more foreign language in special individual cases. The committee determines how the requirement is to be fulfilled.

## Master of Science in Geochemistry

### 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. The Graduate Record Examination Advanced Test may be in any appropriate field of science.

### Course Requirements

A minimum of nine courses is required for the degree, at least six of which must be graduate-level courses. Each course of study is worked out individually between you and the advising committee. You are expected to attain, either through prior training or through prescribed coursework, a common mastery of the subject matter of Earth and Space Sciences 51A, 51B, 51C, 130, 131, 234B, and Chemistry 110A and 110B, as well as more advanced courses in particular fields, and some familiarity with the methods of field geology. You must take course 235A, 235B, or 235C each quarter.

Sixteen units of 500-series courses (596, 597, 598) may be applied toward the total course requirement; 12 units may be applied toward the minimum graduate course requirement.

### Thesis Plan

The thesis must be approved by the research director (usually the chair of your advising committee), as well as by the other members of the advising committee. No examination is required of students who write a thesis.

### Comprehensive Examination Plan

If you elect this plan, the advising committee will prepare and administer the final examination (normally oral). In most cases, a failed final examination can be repeated once.

## Master of Science in Geology

### 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.

## Course Requirements

Each course of study is worked out individually between you and the advising committee. It may include appropriate courses offered by other departments. Unless you have already passed Earth and Space Sciences 111A and 111B, you are required to take either 195G or 111A and 111B in your first year of residence. Depending on performance in course 195G, you may subsequently be required to take all or part of the 111 sequence.

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 (courses 251 through 260). Except for courses 597 and 598, those graded on an S/U basis may not be applied toward the requirements. The advising committees may require additional courses in light of individual educational objectives and backgrounds.

Eight units of 500-series courses (596, 597, 598) may be applied toward the total course requirement; four units may be applied toward the minimum graduate course requirement.

## Specialization in Nonrenewable Natural Resources

The objective of this program is to prepare students for professional careers in the geology of metallic, nonmetallic, and fossil energy resources. Individual courses of study are arranged in consultation with the committee for graduate study in nonrenewable natural resources. Relevant subjects include mineral deposits, mining and exploration geology, geophysical exploration, petroleum and coal geology, depositional systems and basin analysis. Particularly relevant courses include Earth and Space Sciences 128A, 128B, 130, 131, 132, 136A, 136B, 136C, 137, 138, 144, 150, 227, 241, 254, 258, and 268, as well as selected courses in chemistry, engineering, the social sciences, law, and management.

## Thesis Plan

This plan is normally required for students not continuing to the doctorate. 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 recommend either termination of graduate study or further coursework or research or both leading to a revised thesis. Revision and resubmission is not normally permitted more than once.

## Comprehensive Examination Plan

This plan is recommended for those continuing to the Ph.D. The examination consists of a six-hour written part covering your major field of study and a subsequent oral part which may be

more general in scope. If the examination is failed, the advising committee may recommend either termination of graduate study or further coursework followed by another examination. Reexamination is not normally permitted more than once.

## Master of Science in Geophysics and Space Physics

### 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. Graduate Record Examination Advanced Test scores are preferable in physics, although mathematics or geology scores are also acceptable.

Qualified students may proceed directly toward the Ph.D. degree, although most obtain the M.S. degree in the process.

### Course Requirements

Courses applied toward the 36-unit minimum requirement must include Earth and Space Sciences 200A, 200B, and 200C and at least 12 additional units of 200-series (graduate) courses. At least half of these must fall within a single field of concentration (applied geophysics, earth's interior, geophysical fluid dynamics, planetology, or space physics) selected in consultation with your faculty adviser, and the remainder must contribute to your general competence in geophysics and space physics. Courses from the 500 series and courses graded on an S/U basis may not be applied toward the minimum requirement; 500-series courses also may not be applied toward any other degree requirements.

### Thesis Plan

This plan is an optional alternative to the comprehensive examination plan. At least two members of the thesis committee must be from the department.

### Comprehensive Examination Plan

The examination is the comprehensive part of the written qualifying examination taken by doctoral students, but the passing level for the master's degree is less rigorous. The examination is on the level of the introductory courses (200A, 200B, 200C). It lasts six hours and is given every June and December. It must be first attempted by the end of the fourth quarter of enrollment. If failed, it must be retaken the next time it is given. Permission to take it a third time may be granted by the graduate adviser in extenuating circumstances.

## Specialization in Applied Geophysics

The objective of this program is to provide advanced technical training to students who plan to do detailed analysis of geophysical data in industry, mainly in petroleum exploration. Undergraduate preparation for admission is equivalent to a B.S. in Geophysics (applied geophysics specialty), including a common mastery of the subject matter of Earth and Space Sciences 111A, 111B, 112, 122, 136A, 136B, 136C, Physics 105A, 105B, 110A, 110B, and 114. Exceptions may be allowed, but in particular, deficiency in geophysical fieldwork must be made up.

**Course Requirements:** 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 200B, 208, 224A, 224B are recommended. Eight units of 500-series courses (596, 598) may be applied toward the graduate course requirement.

**Thesis Plan:** A thesis is required for this specialization. A qualifying examination on the suitability of the proposed thesis should be taken by your fourth quarter in residence. You will also be required to take a final examination on the adequacy of your completed thesis.

## Ph.D. in Geochemistry

### Admission

Admission requirements are the same as those for the M.S. in Geochemistry.

### Course Requirements

Each course of study is worked out individually in consultation with your advising committee. You are expected to complete at least the minimum number of courses which are required for the M.S. in Geochemistry and to attain, either through prior training or through prescribed coursework, a common mastery of the subject matter of Earth and Space Sciences 51A, 51B, 51C, 130, 131, 234B, and Chemistry 110A and 110B, as well as more advanced courses in particular fields, and some familiarity with the methods of field geology. You must take course 235A, 235B, or 235C each quarter.

### Qualifying Examinations

The departmental written qualifying examination must be taken before the end of the first year of the doctoral program if you have 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 your discretion. Contact the department for details of each format. In case of failure, an examination of either format may be repeated at the discretion of the examining committee.



After passing the written qualifying examination, you must nominate your doctoral committee and arrange a time for the University Oral Qualifying Examination. This examination determines the suitability of the selected problem for the dissertation and your ability to research the problem but is not limited to these topics. Repetition of a failed examination is at the option of the doctoral committee.

### Final Oral Examination

The final oral examination is normally required.

### Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Ph.D. in Geology

### Admission

Admission requirements are the same as those for the M.S. in Geology.

### Course Requirements

Each course of study is worked out individually in consultation with your advising committee. It may include appropriate courses offered by other departments. Unless you have already passed Earth and Space Sciences 111A and 111B, you are required to take either 195G or 111A and 111B in your first year of residence. Depending on performance in course 195G, you may subsequently be required to take all or part of the 111 sequence. You also are expected to complete at least the minimum number of courses which are required for the M.S. in Geology and must take a geology seminar each year.

### Qualifying Examinations

The departmental written qualifying examination must be taken before the end of the first year of the doctoral program if you have a master's degree; otherwise, it must be taken before the end of the second year of enrollment. It is given in either a question-answer format or in a proposal-proposition format, at your discretion. Contact the department for details of each format.

After passing the written qualifying examination, you must nominate your doctoral committee and arrange a time for the University Oral Qualifying Examination. This examination determines the suitability of the selected problem for the dissertation and your ability to research the problem but is not limited to these topics. Repetition of a failed examination is at the discretion of the doctoral committee.

### Final Oral Examination

The final oral examination is normally required.

### Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Ph.D. in Geophysics and Space Physics

### Admission

Admission requirements are the same as those for the M.S. in Geophysics and Space Physics.

### Course Requirements

There are no specific requirements.

### Qualifying Examinations

In this program the written qualifying examination is divided into three stages: (1) the fundamental physics examinations, (2) the comprehensive examination, and (3) the field examination. Examinations 1 and 2 must be passed before undertaking examination 3. Students not passing these examinations within three years, two years, and four years, respectively, after entering the program are subject to dismissal. Contact the department for details on each of the three stages.

You must nominate the doctoral committee and arrange a time for the University Oral Qualifying Examination as soon as possible after passing the field examination. This examination determines the suitability of the selected problem for the dissertation and your ability to research the problem but is not limited to these topics. Repetition of a failed examination is at the option of the doctoral committee. If you do not pass this examination within five years after entering the program, you are subject to dismissal.

### Final Oral Examination

The examination is required.

## Lower Division Courses

**1. Fundamentals of Earth Science.** Elements of earth science; study of earth materials; the nature and interpretation of geologic evidence; study of geologic processes; historical aspects of geology.

Mr. Nelson, Mr. Oertel, Mr. Rosenfeld (F,W,Sp)

**2. Earth History.** Prerequisite: course 1. Methods of historical science; consideration of special problems relating to the physical and biological evolution of the earth from earliest time to the present.

Mr. Nelson (W)

**3. Evolution: Solar System, Earth, Life.** A non-mathematical course for the general University student. Origin and evolution of the solar system, emphasizing the planets Mercury, Venus, Earth, and Mars. Internal evolution of the earth and its geologic consequences (including oceans and atmosphere). Evolution of life; its interaction with the terrestrial environment.

Mr. Ernst, Mr. Kaula, Mr. Schopf (F)

**5. Earth Science and Society: Geological Ecological Interactions.** 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.

Mr. Reed

**8. Earthquakes.** The causes and effects of earthquakes, with special emphasis on the problems of living with earthquakes in Southern California. Topics include the 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.

Mr. Schubert (Sp)

**9. Origin and Evolution of the Solar System.** Properties of the 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 the earliest history of the solar system. Chemical models of the solar nebula. Space exploration and its planning.

Mr. Wasson (W)

**10. Geology of California.** Prerequisite: course 1. General survey of major geologic features and geologic history of California; its relationship to large-scale crustal motions of Western North America and the Eastern Pacific. Environmental geology; study of geologic hazards such as earthquakes, landslides; aspects of urban geology.

Mr. Nelson

**15. Introduction to Oceanography.** Not open for credit to students with credit for Biology 25. Processes responsible for the chemical composition of the ocean and current circulation patterns. Seafloor spreading and morphology of the ocean floor. Biological productivity, marine ecology, and minerals forming in the ocean.

Mr. Jackson, Mr. Kaplan, Mr. Newman (F,Sp)

**20. Natural History of Southern California.** Identification, distribution, diversity of plants, animals, and communities; environmental factors influencing distribution in alpine to lower desert life zones. Identification, interpretation, and physical history of rocks, landforms, and structural geologic features within the physiographic regions of Southern California. Emphasis on field-based learning related to integrated aspects of natural history.

Mr. Hall

**51A. Mineralogy-Petrology.** Prerequisite: course 1 or consent of instructor. Recommended: completion of chemistry requirement. Mineralogic crystal chemistry; relation of physical properties to structure. Structural classification and petrogenesis of the main rock-forming minerals. Laboratory study of crystallography and identification of minerals in igneous, sedimentary, and metamorphic rocks.

Mr. Dollase (F)

**51B. Mineralogy-Petrology.** Prerequisites: course 51A and an introductory course in high school or college physics, or consent of instructor. Principles of optical crystallography. Utilization of optical properties to identify nonopaque minerals in immersion media and in thin section. Sufficient theory is presented to understand the operations performed in the laboratory.

Mr. Dollase (W)

**51C. Mineralogy-Petrology.** Prerequisite: course 51B. Composition, occurrence, and origin of igneous, sedimentary, and metamorphic rocks; megascopic and microscopic study of rocks.

Mr. Barton (Sp)

## Upper Division Courses

**100. Principles of Earth Science.** Designed for non-majors. Not open to students with credit for course 1. Fundamentals of physical geology and earth history; major problems of geology, such as continental drift and development of large-scale features of the earth; physical and biological evolution.

Mr. Oertel (Sp)

**101. Introduction to Geophysics and Space Physics.** Prerequisites: Physics 8A, 8B, 8C, Mathematics 31A, 31B, 32A. Designed primarily for students majoring in a physical science or mathematics. A survey of geophysics, the physics of the planets, their atmospheres, and the interplanetary medium, with emphasis on topics of current research interest.

Mr. Coleman (Sp)



**103A. Igneous Petrology.** Lecture, two to three hours; laboratory, six hours; field trips. Prerequisites: courses 51A, 51B, 51C, 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 the earth. Introduction to thermodynamics as applied to petrology. The formation of magma, its movement, eruption, crystallization, and chemical evolution. Petrologic structure of the crust and mantle and its relation to seismology. Overview of the petrological and chemical evolution of the earth, moon, and other planets from their origin to the present.

Mr. Boettcher (F)

**103B. Sedimentary Petrology.** Lecture, two to three hours; laboratory, six hours; field trips. Prerequisite: course 103A. Recommended: course 111A. Study of sedimentary rocks based on the characteristics of sedimentary particles and the dynamics of depositional processes. Lectures focus on development of depositional facies models, and laboratories emphasize recognition of sedimentary deposits from each major depositional facies.

Mr. Reed (W)

**103C. Metamorphic Petrology.** 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 the application of physical and chemical principles.

Mr. Rosenfeld (Sp)

**105. Nonrenewable Resources and Society.** Lecture, three hours; discussion, two hours. Prerequisite: course 1 or consent of instructor. Topics include geological and economic characteristics of mineral resources, exploration, recovery, risks, exhaustibility, mineral law, land-use conflicts, taxation, and environmental concerns.

Mr. Carlisle

**111A. Elements of Field Geology.** Lecture, two hours; laboratory, three hours; field, one day per week. Prerequisites: courses 1, 2, 51C, and 112, or consent of instructor. 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.

Mr. Shreve (W)

**111AG-111BQ. Field Geology (2 to 4 units each).** Prerequisite: graduate standing or consent of instructor. Geologic mapping, principles of stratigraphy, structural geology, and map interpretation.

**111B. Stratigraphic and Field Geology.** Prerequisite: course 111A or consent of instructor. Principles of stratigraphy; geologic mapping of a selected area; preparation of a geologic report.

Mr. Hall (Sp)

**112. Structural Geology.** Lecture, three hours; laboratory, six hours. Prerequisite: course 1 or consent of instructor. Planar and linear structures at different scales in sedimentary, metamorphic, and igneous rocks. Faults and folds, their description, classification, and dynamic analysis. Deformation, strength, fracture, and rheological properties of rocks.

Mr. Christie (F)

**114. Introduction to Stress and Deformation.** Lecture, three hours; discussion, three hours. Prerequisite: course 112 or consent of instructor. An introduction to the quantitative treatment of strain in geological bodies, the stresses that cause them, and their rheological behavior. Stress and strain fields in folds, near faults, and in and near intruding magma bodies.

Mr. Oertel

**115. Principles of Paleontology.** Principles governing the evolution and distribution of fossils; the geologic history of plants, invertebrates, and vertebrates.

Mr. DeNiro, Mr. Reed (F,Sp)

**M117. Vertebrate Paleontology.** (Same as Biology M117.) Lecture, three hours; laboratory, three hours. Prerequisite: Biology 110. Recommended: a course in general geology. Limited enrollment. The fossil record of the evolution of the vertebrates, with emphasis on the morphology of primitive forms in the series from fish to mammal.

Mr. Vaughn (Sp)

**M118. Paleobotany.** (Same as Biology M118.) Lecture, three hours; laboratory, three hours. Prerequisite: one course in biological science or consent of instructor. Recommended: course 2 or equivalent. Survey of morphology, paleobiology, and evolution of vascular and nonvascular plants during geologic time, with particular emphasis on major evolutionary events.

Mr. Schopf

**119. Continental Drift and Plate Tectonics.** Lecture, three hours. Prerequisites: upper division standing, introductory course in geology (course 1, 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 the nature of the ocean floor. Magnetic stratigraphy. Seafloor spreading. The plate tectonic model and its driving mechanisms. Tectonic, igneous, and metamorphic processes at plate boundaries.

Mr. Christie (W)

**120. Rubey Colloquium: Major Advances in Earth Science.** (Formerly numbered 120A, 120B.) 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.

Mr. Ernst, Mr. Ingersoll (F)

**121A-121B. Advanced Field Geology (6 units each).** Fieldwork, eight weeks. Prerequisites: courses 111A, 111B, or consent of instructor. Courses 121A and 121B must be taken concurrently. 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.

(Sum)

**122. Physics of the Earth.** Prerequisites: Physics 8A, 8B, 8C, Mathematics 31A, 31B, 32A, or consent of instructor. Application of physics to the structure and evolution of the solid earth. Seismology, convection and heat flow, gravity, geomagnetism, rock magnetism, and the relation of these topics to plate tectonics and other problems of current geophysical interest.

Mr. Anderson (W)

**128A. Mineral Deposits.** Prerequisite: course 51C. Origin and occurrence of important mineral deposits, with emphasis on chalcophile elements and sulfide ores. (Alternates yearly with course 128B.)

Mr. Barton, Mr. Carlisle

**128B. Mineral Deposits.** Prerequisite: course 51C. Origin and occurrence of important mineral deposits, with emphasis on siderophile and lithophile elements and their minerals. (Alternates yearly with course 128A.)

Mr. Barton (Sp)

**130. Isotope Geochemistry.** Prerequisites: junior or senior standing in physical or biological science and consent of instructor. Theoretical aspects of geochronology, particularly carbon 14 dating. Application of radioisotopes to the hydrologic cycle and to atmospheric circulation. Stable isotope distribution in nature. Exchange mechanisms and their applications to paleotemperatures, hydrology, mineral formation, and origin of biological deposits. (Alternates yearly with course 131.)

Mr. Kaplan

**131. Geochemistry.** Prerequisite: junior or senior standing in chemistry, physics, or earth and space sciences. Origin and abundance of the elements and their isotopes; distribution and chemistry of the elements in the earth, oceans, and atmosphere; chemistry of the earth's interior, phase transformations at high pressure and temperature. (Alternates yearly with course 130.)

Mr. Boettcher (W)

**132. Principles of Biogeochemistry.** Prerequisite: Chemistry 21. Organic substances as evidence for origin and biochemical evolution of life; origin and development of petroleum; comparative properties of recent and ancient sediments and application of molecular stratigraphy to modern and ancient sediments.

Mr. DeNiro

**133. Regional Geology.** Lecture, three hours; discussion, two hours. Prerequisites: courses 111A, 111B, 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.

Mr. Nelson (Sp)

**135. Introduction to Applied Geophysics.** Prerequisites: Physics 8A, 8B, 8C or 8D, Mathematics 31A, 31B, 32A, or consent of instructor. Students with credit for course 136A will not receive credit for this course. Principles and techniques of gravimetric, seismic, magnetic, and other geophysical methods of exploration for ores, petroleum, and other economic minerals.

Mr. Jackson (F)

**136A. Applied Geophysics.** Lecture, three hours; laboratory/field trips, three hours. Prerequisites: Physics 8A, 8B, 8C, 8D, Mathematics 33A, Computer Science 10F, or consent of instructor. Students with credit for course 135 will not receive credit for this course. Seismic reflection and refraction, Fourier analysis and deconvolution, vibroseis, synthetic seismograms, marine seismics, seismic interpretation, gravity and magnetic fields, inversion uniqueness and depth rules.

Mr. Davis (F)

**136B. Applied Geophysics.** Lecture, three hours; laboratory/field trips, six hours. Prerequisite: course 136A, Computer Science 10F, 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.

Mr. Coleman (W)

**136C. Field Geophysics (6 units).** (Formerly numbered 169.) Lecture, three hours; discussion, one hour; laboratory, two hours; fieldwork, ten hours. Prerequisites: course 135 or 136A, and 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).

Mr. Davis, Mr. Jackson (Sp)

**136D. Advanced Field Geophysics (6 units).** Lecture, six hours; laboratory, six hours; field, twelve hours. Prerequisites: course 135 or 136A, and 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.

Mr. Davis, Mr. Jackson (Sum, six weeks)

**137. Petroleum Geology.** Lecture, three hours. Prerequisites: courses 111A, 111B, 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.

Mr. Bonham (Sp)

**138. Exploration and Mining Geology.** Lecture, three hours; discussion, two hours; laboratory, four hours; field trip. Prerequisite: course 51C. Geological principles applied to the exploration for and evaluation of mineral deposits; geological techniques at operating mines; mine economics; exploration geology and mineral resource economics.

Mr. Carlisle (F)

**M139. Engineering and Environmental Geology.** (Same as Architecture and Urban Planning M195.) Lecture, two and one-half hours. Prerequisite: course 1 or 100. Recommended: course 111A. 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.

Mr. Merifield (W)

**M140. Introduction to Fluid Dynamics.** (Formerly numbered M149.) (Same as Atmospheric Sciences M140.) Lecture, three hours; discussion, one hour. Corequisite: Physics 131. Equations of fluid motion. Circulation theorems. Irrotational flow. Vortex motion. Surface and internal gravity waves. Rotating frame. Viscous flow. Mr. Arakawa, Mr. Schubert (F)

**141. Sedimentation and Tectonics.** Lecture, three hours; laboratory, four hours. Prerequisites: courses 103B, 111B (may be taken concurrently). Depositional systems; stratigraphic principles; interpretation of ancient facies; basin analysis; plate tectonic settings of sedimentary basins. Mr. Ingersoll (Sp)

**144. Marine Geology.** Prerequisite: senior standing. Recent marine sedimentology and geochemistry; oceanography morphology, structure and geologic history of the ocean basins. Mr. Kaplan

**150. Remote Sensing for Earth Sciences.** Open to upper division and graduate students. Remote sensing related to the development of natural resources. Characteristics of the 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. Mr. Sabins (W)

**M154. Solar Terrestrial Physics.** (Same as Atmospheric Sciences M154.) Lecture, three hours; discussion, one hour. Prerequisite or corequisite: Physics 110B. Particle and electromagnetic emissions from the sun under quiet and under disturbed conditions. The solar wind. The magnetospheres and the ionospheres of the earth and other planets. Geomagnetic phenomena. Aurora and airglow. Mr. Thorne (F)

**M160. Nonlinear Waves.** (Same as Atmospheric Sciences M160.) Lecture, three hours; discussion, one hour. Prerequisite: course M140 or consent of instructor. Basic concepts and examples of nonlinear wave behavior: limit cycles, attractors, bifurcations, relaxation, subharmonics, solitons, periodic versus chaotic behavior, Lorenz masks and Rossler bands. Mr. Newman, Mr. Venkateswaran

**190. Earth and Space Sciences Colloquium (2 units).** Prerequisite for nonmajors: consent of instructor. Current topics of research in the department. May be repeated for credit. P/NP grading. Mr. Rosenfeld (W)

**195G. Field Geology for Graduate Students (2 units).** Field mapping; preparation of a geologic report. P/NP grading. Mr. Oertel (F)

**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 and consent of departmental honors committee. Individual research designed to broaden and deepen the student's 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; the core and geomagnetism; lunar and planetary interiors. Mr. Bird (F)

**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. Mr. Newman (W)

**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 the earth, magnetospheric phenomena. Mr. Russell (Sp)

**201. Classical Mechanics.** Kinematics, variational principles and Lagrange's equations, rotational dynamics. Hamilton equations of motion, linear and nonlinear perturbation theory, applications to the solar system. Mr. Kaula (Sp, alternate years)

**202. Continuum Mechanics.** Kinematics and dynamics of continuous media. Properties of stress, strain, and rate-of-strain tensors. Conservation laws. Rotating systems, boundary layers, and dynamical similarity. Mrs. Kivelson (F)

**203. Electrodynamics.** Prerequisite: upper division electromagnetic theory course or consent of instructor. Maxwell's equations and boundary conditions; momentum, angular momentum, and energy of electromagnetic fields; plane electromagnetic and magnetohydrodynamic waves; wave guides, simple radiating systems, and diffraction. Mrs. Kivelson (W)

**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). The course surveys 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. Mr. Newman (F)

**205. Inverse Theory and Data Interpretation.** Lecture, three hours. Prerequisites: Mathematics 115 and 150A-150B-150C, or consent of instructor. The course addresses the inverse modeling problem — to determine model parameters consistent with experimental data, considering the effects of random errors and nonuniqueness. Linear and quasi-linear problems are emphasized, but nonlinear problems are discussed. Tools to be used include matrix theory, quadratic forms, orthogonal rotations, statistics, the principal axis transformation for rectangular matrices, Backus-Gilbert resolving kernels, and Lagrange multipliers. Examples are taken from a broad range of physical sciences. Mr. Jackson (W)

**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 the 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. Mr. Schubert

**210. Advanced Paleontology.** Prerequisite: course 115 or advanced standing in biological science. Lectures emphasize evolutionary, ecological, stratigraphic, and taxonomic aspects of fossil invertebrates. Fieldwork and laboratory are devoted to a research project and written report. Content varies from year to year. May be repeated for credit.

**M211. Hydrodynamic Instabilities and Turbulence.** (Same as Mathematics M263.) An introduction to the theories of hydrodynamic instability and the nonstatistical description of turbulence; stability bounds by the energy method; linear theory of instability; finite amplitude theories of post-instability flows; bounds on properties of turbulent flows by variational techniques. Mr. Busse (alternate years)

**212. Paleocology.** Prerequisite: course 115 or advanced standing in biological science. How and where animals and plants lived in the past; study of habits and habitats of animals, changes in habits and habitats, and the distribution of animals through time and space. Content varies from year to year. May be repeated for credit. Mr. Hall

**M213. Archaeological and Paleontological Applications of Stable Isotopes (6 units).** (Same as Archaeology M213.) Lecture, three hours. Application of natural variations in stable isotope ratios in fossilized biological and nonbiological materials to a variety of archaeological and paleontological problems. Topics include the basis for isotope distributions in archaeological and paleontological materials; analytical procedures for measuring isotope ratios; dietary reconstruction; paleoclimatic analysis; determination of provenience of archaeological materials; analysis of aspects of the biochemistry and physiology of fossil animals. Mr. DeNiro

**214. Geophysical Fluid Dynamics.** Prerequisite: consent of instructor. Dynamics of stationary and transient motions in rotating systems; Ekman boundary layer theory; inertial oscillations; B-plane approximation; Rossby waves; theory of thermally induced motions; applications to flow phenomena in planetary atmospheres, in the oceans, and in the earth's core. Mr. Busse (Sp, alternate years)

**215. Paleobiology of Plant Microorganisms.** Prerequisite: course 115 or advanced standing in biological science. Survey of morphology, evolution, and diversification, environmental interactions, and stratigraphic value of bacteria, algae, and fungi, with emphasis on dinoflagellates and acritarchs, chrysomonads, silicoflagellates, ebridians and diatoms, discoasters, and coccolithophorids. (Alternates yearly with course 216.) Mrs. Loeblich

**216. Micropaleontology.** Prerequisite: course 115 or advanced standing in biological science. Survey of microfossils of the animal kingdom, their systematics, morphology, ecology, evolutionary history, and stratigraphic use, with emphasis on foraminiferans, radiolarians, chitinozoans, tintinnids, ostracods, scolecodonts, and conodonts. (Alternates yearly with course 215.) Mrs. Loeblich (F)

**219. Planetary and Orbital Dynamics.** Solar system dynamical evolution; figure and gravitational field of a planet; satellite orbits; earth-moon system evolution; rotational dynamics, including effects of nonrigidity and energy dissipation. Mr. Kaula (W)

**220. Principles of Paleobiology.** Prerequisite: graduate standing in science. Open to qualified undergraduates in biological and physical sciences by 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. Mr. Schopf

**222. Introduction to Seismology.** Types of seismic waves; travel-time seismology; epicenter location; amplitude variations; seismograph theory; explosion seismology; seismicity; focal conditions; surface wave analysis; microseisms and tsunamis. Mr. Davis (W)

**M224A. Elastic Wave Propagation I.** (Same as Mechanical, Aerospace, and Nuclear Engineering M257A.) Prerequisite: Mechanical, Aerospace, and Nuclear Engineering 156A or M166 or consent of instructor. Review of elasticity theory; elastic waves in unbounded media; reflection and refraction of plane elastic waves; surface waves and guided waves in multilayered media; waves generated by concentrated loads; radiation from dislocations; attenuation; representative applications in engineering and seismology. Mr. Mai

**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 the vibration of finite elastic bodies; dynamic theories of fracture; representative applications in engineering and seismology. Mr. Knopoff

**225A. Physics and Chemistry of Planetary Interiors I.** Chemical compositions of the 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.

Mr. Anderson, Mr. Boettcher (W)

**225B. Physics and Chemistry of Planetary Interiors II.** Lateral inhomogeneities in the earth: seismic velocities, petrology, geothermal and gravitational variations; evidences of motion; remanent magnetism, seismic motions; postglacial rebound; plate tectonics; rheology of mantle; thermal convection.

Mr. Schubert (Sp)

**226. Theoretical Geomorphology.** Lecture, three hours. Prerequisites: Mathematics 33A and one course in elementary probability theory, or consent of instructor. Analysis of the intellectual foundations and objectives of modern geomorphology, illuminated by selected past and present theories of river profiles, slope processes, and channel networks. Reading and discussion of original sources. Preparation of term paper.

Mr. Shreve (Sp, approximately every third year)

**227. Resource Evaluation Field Methods.** Prerequisites: courses 111B and 128A or 128B or 138, or consent of instructor. Techniques of mapping, sampling, appropriate laboratory studies, economic or socioeconomic evaluation of a variety of nonrenewable natural sources; preparation of reports.

Mr. Carlisle

**228. Planetary Magnetism.** Prerequisite: consent of instructor. Description and analysis of the magnetic fields of the earth and planets. Origin and history of the earth's magnetic field: core dynamics, dynamo theory, paleomagnetism.

Mr. Busse

**229. Planetary Atmospheres.** Lecture, three hours. Prerequisite: course 200B or consent of instructor. The course surveys 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.

Mr. Newman (Sp)

**230. X-Ray Crystallography.** Prerequisite: course 51C. 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. (Alternates yearly with course 231.)

Mr. Dollase (Sp)

**231. Crystal Chemistry and Structure of Minerals.** Prerequisite: course 51C. Bonding, interatomic configurations, polymorphic transformations, isotypism, thermal and positional disorder; survey of the structures of the common minerals, and relation of physical and chemical properties to crystal structure. (Alternates yearly with course 230.)

Mr. Dollase

**233. Mineral Physics and Equation of State.** Prerequisite: consent of instructor. Interrelationship of the 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.

Mr. Anderson (Sp)

**234A. Thermodynamic and Geometric Principles of Phase Equilibria.** Prerequisites: course 51C 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 the fugacity of oxygen, water, and other volatile components as variable parameters.

Mr. Ernst (W)

**234B. Petrologic Phase Equilibria.** Prerequisites: course 51C 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).

Mr. Ernst

**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.

**236. Igneous Petrology.** (Formerly numbered 236A, 236B.) Lecture, two hours; laboratory, six hours. Prerequisites: an introductory course in petrology and petrography and knowledge of differential equations. Understanding the genesis of igneous rocks based on geochemical, tectonophysical, and other geological evidence and principles.

Mr. Boettcher, Mr. DePaolo, Mr. Ernst

**238. Metamorphic Petrology.** Lecture, three hours; laboratory, six hours. Prerequisite: an introductory course in petrology and petrography or consent of instructor. Interpretation of metamorphic rocks in the 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.

Mr. Rosenfeld

**239. Structural Petrology of Deformed Rocks.** Prerequisites: courses 51C, 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 the interpretation of microfabrics. (Alternates yearly with course 249.)

Mr. Christie

**240. Space Plasma Physics.** Prerequisite: course 203 or Physics 210A. The 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.

Mr. Russell (F)

**241. Sedimentary Petrology.** Lecture, two hours; laboratory, six hours. Prerequisites: courses 51C, 103B. Texture, composition, structure, and modes or origin of the sedimentary rocks. Content varies from year to year.

Mr. Ingersoll, Mr. Reed (Sp)

**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 the context of plate-tectonic controls on basin evolution.

Mr. Ingersoll

**245A-245B. Stress and Deformation.** Lecture, three hours. Prerequisites: Physics 8A, 8B, Mathematics 32A, 32B, or consent of instructor. Recommended: Mathematics 33A and 115. 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.

Mr. Oertel (F, W, every third year)

**246. Stress in the Lithosphere.** Prerequisite: course 202 or 245A or Civil Engineering 108 or consent of instructor. Overcoming, 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.

Mr. Bird (alternate years)

**247. Glaciology.** 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.

Mr. Shreve (Sp, every third year)

**248. Advanced Structural Geology.** Lecture, three hours; discussion, two hours. Prerequisites: courses 111A, 111B. Principles governing fracture, folding, and flow rocks; solutions of structural problems at various scales; regional tectonic problems.

Mr. Christie, Mr. Oertel

**249. Structural Analysis of Deformed Rocks.** Discussion, three hours; laboratory, three hours. Prerequisites: courses 111A, 111B, 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. (Alternates yearly with course 239.)

Mr. Christie

**250. Dynamics of the Solar Wind.** Parker's hydrodynamic solution and spiral magnetic field model; effects of magnetic field and solar rotation; shock waves, discontinuities, small amplitude wave propagation, large-scale structure; interaction with the moon, planets, and interstellar medium, stellar winds and stellar spin-down.

Mr. Coleman

**251. Seminar in Mineralogy.** Examination of groups of rock-forming minerals (e.g., feldspars), integrating such aspects as crystal structure, crystal chemistry, phase equilibria, and petrogenesis.

Mr. Dollase

**252. Seminar in Geochemistry.** Phase equilibria under crustal conditions, chemistry of ocean waters, recent and ancient sediments, structure and chemistry of the upper mantle, geochronology, cosmochemistry, and cosmochemistry.

**253. Seminar in Petrology.** 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.

Mr. Rosenfeld

**254. Seminar in Sedimentology.** Processes of sediment transport and deposition; deep sea sediments; deltas and estuaries; petrology of carbonates, sandstones, and lutes; stratigraphy; paleoenvironmental studies.

Mr. Ingersoll (W)

**255. Seminar in Structural Geology and Tectonics.** Flow and fracture in the 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 the oceanic basins; processes leading to segregation of continental-type rocks.

Mr. Christie, Mr. Oertel (Sp)

**256. Seminar in Glaciology and Geomorphology.** Glacier physics, theoretical geomorphology, river mechanics, statistical models.

Mr. Shreve

**257. Seminar in Paleontology.** Current biogeological literature and research on evolution of selected groups of animals and plants, numerical taxonomy, organism-environmental relationships, origin and development of life, biostratigraphy, paleoecology, biogeography, and biostatistics.

**258. Seminar in Mineral Deposits.** Problems of distribution, composition, and formation of mineral deposits; mineral economics; investigations of opaque minerals by microscopic or other techniques.

Mr. Barton (F)

**259. Seminar in Advanced Topics in Geology (2 to 4 units).** Topics vary. May be repeated for credit.

**260. Seminar in Geological Physics (2 to 4 units).** Problems of current interest in geological physics, including topics related to impact cratering processes, mechanisms of volcano eruption, high pressure properties of materials, and thermodynamics of crystals.

**261. Topics in Magnetospheric Plasma Physics.** Lectures, discussions, and exercises on specific advanced topics in magnetospheric plasma physics. Previous courses have examined magnetic storms, magnetospheric substorms, ultralow frequency waves, and adiabatic particle motion in the earth's radiation belts.

**265. Instrumentation, Data Processing, and Data Analysis in Space Physics.** 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.

Mr. McPherron

**268. Seminar in Resource Analysis.** Prerequisite: consent of instructor. Geological, geophysical, economic, and technological factors in studies of optimum use of mineral and energy resources. Seminars emphasize different mineral or energy sources from time to time.

**282. Seminar in Geophysics.** 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.

**284. Seminar in Mineral Physics and Rock Physics (2 to 4 units).** Prerequisite: course 233 or 234A. Seminar for students interested in rock physics, mineral physics, and aspects of seismology and petrology. Students present seminars in their research topics. Topics include equations of state, acoustic properties of minerals under pressure, dielectric properties of minerals, properties of the earth's deep mantle and core, compression of porous aggregates, fracture dynamics, lattice dynamics of low symmetry crystals, laboratory analogs of earthquakes.

Mr. Anderson

**M285. Origin and Evolution of the Solar System.** (Same as Astronomy M285.) Dynamical problems of the solar system; chemical evidences from geochemistry, meteorites, and the solar atmosphere; nucleosynthesis; solar origin, evolution, and termination; solar nebula, hydromagnetic processes, formation of the planets and satellite systems. Content varies from year to year. May be repeated for credit. S/U grading.

Mr. Kaula

**286A-286B-286C. Seminar in Planetology (2 units each).** Problems of current interest concerning the moon, planets, and meteorites. May be repeated for credit. S/U grading.

**287A-287B-287C. Seminar in Seismology and the Earth's Interior (2 units each).** Problems of current interest in seismology and the earth's interior. May be repeated for credit. S/U grading.

**288A-288B-288C. Seminar in Space Physics (2 units each).** Problems of current interest concerning particles and fields in space. May be repeated for credit. S/U grading.

**289A-289B-289C. Seminar in 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 in Time-Series Analysis (2 units).** Discussion of recent research in spectral estimation, filtering, and signal detection applied to geophysical problems. S/U grading.

Mr. Jackson

**295. Earth and Space Sciences Colloquium (1 to 2 units).** Reading and discussion in the frontiers of earth and space sciences.

**297. Advanced Techniques in Geological Research (2 to 4 units).** S/U grading.

**298. 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. A teaching apprenticeship under the 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. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. 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 Examination (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

290 Royce Hall, 206-8235

### Professors

Robert C. Epp, Ph.D. (*Japanese*)  
Hartmut E. F. Scharfe, Ph.D. (*Sanskrit*)  
Ensho Ashikaga, M. Litt., Giko, *Emeritus* (*Japanese*)  
Kenneth K. S. Chen, Ph.D., *Emeritus* (*Chinese*)  
Kan Lao, B.A., *Emeritus* (*Chinese*)  
Richard C. Rudolph, Ph.D., *Emeritus* (*Chinese*)

### Associate Professors

Ben Belfu, Ph.D. (*Japanese*)  
Hung-hsiang Chou, Ph.D. (*Chinese*)  
William R. LaFleur, Ph.D. (*Japanese*)  
E. Perry Link, Jr., Ph.D. (*Chinese*), *Chair*  
Herbert E. Plutschow, Ph.D. (*Japanese*)  
Richard E. Strassberg, Ph.D. (*Chinese*)  
Shirleen S. Wong, Ph.D. (*Chinese*)

### Lecturers

Y. C. Chu, M.A. (*Chinese*)  
Kuo-yi Pao (Unenseñen), M.A., M.S. (*Chinese*)

### Visiting Associate Professor

Noriko Akatsuka, Ph.D. (*Japanese*)

### Visiting Lecturers

Ikuo Nishide, B.A. (*Japanese*)  
Tomiko Suzuki, M.A. (*Japanese*)

## Scope and Objectives

The Department of East Asian Languages and Cultures aims to provide students with an exposure to the rich cultural heritage of East Asia. This is accomplished through courses in language, literature, thought, religion, 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 science. The Ph.D. program, which is very selective, trains research scholars for academic careers in specialized fields.

## Bachelor of Arts in Chinese

### Preparation for the Major

*Required:* East Asian Languages and Cultures 1A-1B-1C, 11A-11B-11C, 40A, History 9B-9C. Anthropology 22, East Asian Languages and Cultures 113A, and English 4 are recommended.

### 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 East Asian Languages and Cultures 121A, 121B, 121C, 124A, 124B, 124C, 151A, 151B, and at least four classical language courses from 113A, 113B, 113C, 152A, 152B, 163A, 163B, 163C.

The remaining four and one-half required courses must include East Asian Languages and Cultures 140A or 140B or 140C; one course from 170A, 170B, 173, or 183; 199 (at least two units in the senior year); Art 114B; and either History 182A, 182B, 182C, or 183.

English 100A, 100B, 100C, and additional courses in history are recommended. Those planning to undertake graduate study are urged to include in their undergraduate program additional courses in classical Chinese and to begin Japanese. 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:* East Asian Languages and Cultures 9A-9B-9C, 19A-19B-19C, 40B, History 9B-9C. Anthropology 22, East Asian Languages and Cultures 113A, and English 4 are recommended.

### The Major

*Required:* A total of 11½ courses, of which seven must be upper division language courses selected from East Asian Languages and Cultures 119A, 119B, 129, 134A, 134B, 137, 139, 142A, 142B, 145, 153A, 153B, 175, 179A, 179B. The seven courses must include 119B, 129, and 134A or 134B or 153A or 153B.

The remaining four and one-half required courses must include East Asian Languages and Cultures 141A or 141B; one course from 174 or 184; 199 (at least two units in the senior year); Art 114C; and either History 187A, 187B, or 187C.

English 100A, 100B, 100C, and additional courses in history are recommended. Those planning to undertake graduate study are urged to include in their undergraduate program five courses in classical Chinese and Japanese. Those planning to undertake advanced graduate study are urged to gain a reading knowledge of French or German.

## Master of Arts Degree

### Admission

To qualify for admission you are expected to (1) meet general University requirements, (2) have taken a minimum of five courses or the equivalent in classical Chinese or Japanese, and (3) present a B.A. degree from a Department of East Asian Languages and Cultures similar to UCLA's. Applicants with the B.A. in another field or from departments whose requirements are less rigorous, or who have taken less than five quarters of classical Chinese or Japanese, will be admitted only if they can meet the requisite standards within one year. Selection will be based on (1) prior scholastic performance, (2) recommendations by professors and others, (3) score on the Graduate Record Examination (Aptitude Test), and (4) strength and suitability of purpose.

Foreign students are also required to take the Test of English as a Foreign Language administered by the Educational Testing Service, unless this test is not offered in their country of residence. Foreign students must also take a test in translation from Chinese or Japanese into English, either with the comprehensive examinations or earlier.

### Major Fields or Subdisciplines

M.A. students may specialize in either Chinese language and culture or Japanese language and culture.

### Language Requirements

Students majoring in Chinese must have completed at least one year of modern Japanese with a grade of B or better; those majoring in Japanese must have completed one year of classical or modern Chinese with a grade of B or better. This requirement need not be fulfilled before admission to the M.A. program.

Foreign students may also be required to take English as a Second Language 33A, 33B, 33C, 34, 36, or other ESL courses.

### Course Requirements

Nine courses are required for the degree, of which five must be graduate courses. East Asian Languages and Cultures 295 is required for the Chinese major, and course 296 is required for the Japanese major. In unusual cases and with departmental consent, courses taken outside the department that are appropriate to your program may be applied toward the nine courses but not toward the five graduate

courses. Courses in the 500 series and those taken to meet admission standards may not be applied toward the total course requirement.

### Comprehensive Examination Plan

All students will take comprehensive examinations in the literature and cultural history of either China or Japan. In addition, you will be required to present two seminar research papers. The results of the examinations and the quality of the papers will determine whether you will be admitted to the Ph.D. program.

## Ph.D. Degree

### Admission

An M.A. degree in the field or in a related field is required. Selection among qualified applicants from outside the department will be based on the four criteria listed under admission to the M.A. degree, plus a recent research paper by the applicant. Students with an M.A. in the department will be judged on their M.A. record, plus three letters of recommendation.

Foreign students must meet the same requirements specified for such students in the M.A. program, including a translation examination at the time of the qualifying examinations or earlier.

### Major Fields or Subdisciplines

The department emphasizes three 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) Buddhism with the subdisciplines of Chinese and Japanese Buddhism. In addition, a program in ancient Chinese civilization or Japanese linguistics may be arranged by petition. Departmental faculty will also participate in the design of individual Ph.D. programs.

### Foreign Language Requirement

You must demonstrate a reading knowledge of French or German by passing the Graduate School Foreign Language Test administered by the Educational Testing Service (minimum score of 500) or by passing a level five course with a grade of B or better. With the consent of the department, Russian may be substituted.

### 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 courses (not including courses taken to meet the language requirements listed below) beyond the M.A. degree is required. In addition, students majoring in Chinese must take three years of modern Japanese or the equivalent (i.e., one course beyond East Asian

Languages and Cultures 119B); those majoring in Japanese must take two years of classical Chinese or the equivalent (i.e., three courses beyond East Asian Languages and Cultures 113C). Those majoring in Buddhist studies must also take appropriate courses in Sanskrit or Pali. A grade of B or better is required in courses taken to fulfill the language requirements.

### Qualifying Examinations

You must take four written examinations, as follows:

(1) For students in Chinese literature:

(a) A general examination in Chinese literature.

(b) Examinations in three approved fields selected from Chinese poetry, Chinese drama, Chinese fiction, modern Chinese literature, ancient Chinese civilization, Chinese Buddhism or another field of Chinese thought or religion, Japanese literature, and, in unusual cases, a field offered in another department or interdepartmental program.

(2) For students in Japanese literature:

(a) A general examination in Japanese literature.

(b) Examinations in three approved fields selected from ancient, medieval, early modern, or modern Japanese literature; Japanese Buddhism or another field of Japanese thought or religion; Chinese literature; and, in unusual cases, a field offered in another department or interdepartmental program.

(3) For students in Buddhism, ancient Chinese civilization, or Japanese linguistics:

(a) An examination in your major language area.

(b) A general examination in your major field.

(c) An examination in an approved subfield within your major field.

(d) A general examination in another approved field inside or outside the department.

The qualifying examinations must be taken within a four-week period after satisfying all language and course requirements. With the consent of the department, you may repeat the examinations once only.

After successful completion of the written examinations, the department appoints a doctoral committee whose chair serves as your dissertation adviser. Preferably within six months, but no more than a year after your written examinations, you must pass the University Oral Qualifying Examination on the proposed dissertation topic and in appropriate related areas of study. With department consent, you may repeat the examination once.

Within three years after you have advanced to candidacy, you must present a dissertation embodying the results of independent investi-



gation. If you fail to meet the five-year time limit for the completion of the dissertation, you may be required to take the written qualifying examinations again.

### Final Oral Examination

A final oral defense of the dissertation is optional at the discretion of the doctoral committee.

### Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

### Lower Division Courses

No credit will be allowed for completing a less advanced course after successful completion of a more advanced course in grammar and/or composition.

**1A-1B-1C. Elementary Modern Chinese.** Lecture, five hours. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Students whose knowledge of Chinese disqualifies them for these courses should take courses 2A-2B-2C or more advanced courses. An introduction to standard spoken Chinese and Chinese characters, with emphasis on conversation.

Mr. Chu, Mr. Pao

**2A-2B-2C. Elementary Mandarin for Speakers of Chinese Dialects.** Lecture, five hours. A beginning course specially designed for students who speak, or have some familiarity with, a non-Mandarin dialect of Chinese. All aspects of Mandarin are taught, with emphasis on Mandarin pronunciation and usage.

Mr. Chu

**9A-9B-9C. 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 the written forms. Conversation drill is based on material covered in class.

Ms. Akatsuka

**11A-11B-11C. Intermediate Modern Chinese.** Lecture, three hours; laboratory, one hour. A continuation of courses 1A-1B-1C, with balanced instruction in reading, writing, and conversation.

Mr. Pao

**15A-15B-15C. Intermediate Spoken Japanese (2 units each).** Lecture, three hours. Prerequisites: course 9C and consent of department. May be taken concurrently with courses 19A-19B-19C. Limited to students with credit for courses 9A-9B-9C. Conversational Japanese.

**19A-19B-19C. Intermediate Modern Japanese.** Lecture, three hours; laboratory, two hours. Prerequisite: course 9C or equivalent. A continuation of courses 9A-9B-9C. Readings in modern Japanese, with emphasis on comprehension and structural analysis.

Mr. Epp

**40A. Chinese Civilization.** Knowledge of Chinese is not required. A survey of the development of the outstanding aspects of Chinese culture from prehistoric to modern times.

Mr. Chou

**40B. Japanese Civilization.** Knowledge of Japanese is not required. A survey of the development of Japanese culture and its relationship to the Asiatic mainland.

Mr. Plutschow

**42. The Tea Ceremony: An Introduction to the History of Japanese Culture in Theory and Practice.** Lecture, three hours; demonstration. The course treats the history and culture of Japan as revealed through study and practice of the Tea Ceremony. Topics include Buddhism, aesthetics, calligraphy, painting, architecture, gardens, ceramics, and politics.

Mr. Plutschow

**46. Chinese Civilization in Modern Times.** Knowledge of Chinese is not required. A survey of developments in Chinese culture from the late 19th century to the present.

### Upper Division Courses

**113A-113B-113C. Introduction to Classical Chinese.** (Formerly numbered 13A-13B-13C and 113A-113B.) Lecture, three hours. Prerequisite: course 1C or consent of instructor. Grammar and readings in selected texts.

Ms. Wong

**119A-119B. Advanced Modern Japanese.** Lecture, three hours; laboratory, one hour. A continuation of courses 19A-19B-19C. Emphasis on comprehension, grammar, and proficiency in reading, composition, and conversation in modern Japanese.

**121A-121B-121C. Advanced Modern Chinese.** Prerequisite: course 11C. Readings in modern prose and newspaper style.

Mr. Chu

**122A-122B. Readings in Modern Chinese Literature.** Lecture, three hours. Prerequisite: course 121B or consent of instructor. Readings and discussion of works of modern Chinese literature. **122A.** Poetry and Prose; **122B.** Drama and Fiction.

Mr. Link

**124A-124B-124C. Readings in Modern Expository Chinese.** Lecture, three hours. Prerequisite: course 121B or consent of instructor. Readings in the social sciences, including Chinese Communist materials.

**124A.** Nationalist Chinese Materials (including the May 4th Movement); **124B.** Political and Military Materials of Communist China; **124C.** Economic and Educational Materials of Communist China.

Mr. Chu

**126. Post-1949 Chinese Literature.** Prerequisite: course 121B or consent of instructor. Reading and discussion of selected works in contemporary poetry, drama, and fiction, with emphasis on the People's Republic of China.

Mr. Link

**129. Introduction to Classical Japanese.** Lecture, three hours. Prerequisite: course 119B or consent of instructor. Introduction to literary Japanese, with readings and discussions in the prose and poetry of the Heian period.

Mr. Bifu

**134A. Introduction to Kawabata Yasunari.** Lecture, three hours. Prerequisite: course 19C. Reading and analysis of the Nobel Laureate's short stories, with particular emphasis on their emotional structure.

Mr. Epp

**134B. Introduction to Mushakoji Saneatsu.** Lecture, three hours. Prerequisite: course 19C. Reading and discussion of Mushakoji's prose, fiction, and poetry.

Mr. Epp

**135. Buddhist Themes in Asian Literature.** Knowledge of Asian languages is not required. A survey of selected works of Buddhist literature of India, China, and Japan. Includes canonical works such as the *Lotus Sutra* and noncanonical works of poetry, prose, and drama containing Buddhist themes.

Mr. LaFleur

**137. Introduction to Kambun and Other Literary Styles.** Lecture, three hours. Prerequisite: course 119B or consent of instructor. Introduction to Kambun, the Japanese literary rendering of Classical Chinese, and Sorobun, the epistolary style.

Mr. Bifu, Mr. Plutschow

**139. Introduction to Buddhist Texts.** Lecture, three hours. Prerequisite: course 113C, 119A, or 121A. Studies in Buddhist terminology.

**140A-140B-140C. Chinese Literature in Translation.** Knowledge of Chinese is not required. Lectures and collateral reading of representative works in English translation. **140A.** Poetry from Earliest Times to the 19th Century; **140B.** Drama and Fiction from the 13th Century to the End of the Ch'ing Period; **140C.** 20th-Century Poetry, Drama, Fiction.

Mr. Link, Mr. Strassberg, Ms. Wong

**141A-141B. Japanese Literature in Translation.** Knowledge of Japanese is not required. A survey of Japanese literature from the beginning to modern times, emphasizing Chinese, Buddhist, and Western influences. **141A.** Beginning to 1600; **141B.** 1600 to Modern Times.

Mr. Plutschow

**142A. Readings in the Japanese Family System.** Lecture, three hours. Prerequisite: course 119B. Analysis and discussion of articles describing and criticizing the family-system mindset, how this mindset permeates interpersonal relationships, and the way the system has functioned in the past.

Mr. Epp

**142B. Human Problems in the Modernization of Japan.** Lecture, three hours. Prerequisite: course 119B. Analysis and discussion of articles that deal with the definition of modernization, with its relation to traditional values and self-awareness, and with the role of the intellectual.

Mr. Epp

**145. Readings in Modern Expository Japanese.** Prerequisite: course 119A. Readings in contemporary affairs, including politics, economics, trade, and social issues. The reading material is taken from current Japanese newspapers and journals.

Mr. Plutschow

**151A-151B. Readings in Traditional Chinese Fiction.** Prerequisite: course 11C or equivalent or consent of instructor. Selected readings from the classic Chinese novels. Designed primarily as a language course; emphasis on translation and obtaining a command of the various literary styles, as well as on critical interpretation of the texts.

Mr. Strassberg

**152A-152B. Readings in Classical Chinese Poetry.** Lecture, three hours. Prerequisite: course 113C or consent of instructor. Discussion and collateral reading of representative works selected on the basis of such critical concerns as thematic patterns, image clusters, genres, and the characteristics of major poets.

Ms. Wong

**153A. Kawabata's Contemporaries.** Lecture, three hours. Prerequisite: course 119A or 134A or 134B. Readings in the fiction and poetry of Ibuse Masuji, Maruyama Kaoru, Ozaki Kazuo, Tsuboi Sakae, and Yokomitsu Riichi.

Mr. Epp

**153B. Introduction to Shiga Naoya.** Lecture, three hours. Prerequisite: course 119A or 134A or 134B. Reading and discussion of Shiga's short stories, with special emphasis on his I-novel technique.

Mr. Epp

**154A-154B. Mongolian.** Lecture, three hours; laboratory, one hour. To be offered when requested by a sufficient number of students.

Mr. Pao

**160. Elementary Sanskrit.** Introduction to script and grammar, with reading exercises and attention to the significance of Sanskrit for the understanding of other Indo-European languages.

Mr. Scharfe

**161. Intermediate Sanskrit.** Prerequisite: course 160 or equivalent. Advanced aspects of grammar and the reading of literary texts.

Mr. Scharfe

**162. Advanced Sanskrit.** Prerequisite: course 161 or equivalent. The entire Bhagavadgita or a comparable amount of other Sanskrit literature is read.

Mr. Scharfe

**163A-163B-163C. Readings in Chinese Literary Texts.** Lecture, three hours. Prerequisite: course 113C.

**165. Readings in Sanskrit.** Prerequisite: course 162 or equivalent. Extensive reading in such texts as best serve the students' needs.

Mr. Scharfe

**167. Introduction to Indic Philosophy.** A survey of the main trends in Indian philosophy from ancient to modern times.

Mr. Scharfe

**170A-170B. Archaeology in Early and Modern China:**

**170A.** Introduction to Chinese Archaeology. Early Chinese study of their own past, types of artifacts, antiquarianism, and the beginnings of scientific archaeology in China before 1949.

**170B. Archaeology in the People's Republic of China.** Survey of major excavations of sites of all periods, carried out under the intensive archaeological program of the PRC, and the interpretation of the archaeological findings. Mr. Chou

**172. Introduction to Buddhism.** Knowledge of Asian languages is not required. Life of the Buddha and fundamental doctrines of Buddhism; Buddhist writings; the monastic order; early sects. The popular cult. The rise and development of Mahayana Buddhism: writings and doctrines. The Tantric doctrines and the end of Indian Buddhism.

**173. Chinese Buddhism.** Knowledge of Asian languages is not required. The introduction and development of Buddhism in China, interaction between Buddhism and Chinese culture, rise of the Chinese schools of Buddhism such as Pure Land and Zen, contributions to Chinese culture.

**174. Japanese Buddhism.** Knowledge of Asian languages is not required. The development of Buddhism in Japan and its influence on Japanese culture, with emphasis on the arts.

**175. The Structure of the Japanese Language.** Lecture, three hours; reading or discussion, one hour. Prerequisite: consent of instructor. Phonology, morphology, and syntax of Japanese.

**179A. Readings in Medieval Japanese Literature.** Lecture, three hours. Prerequisite: course 129 or consent of instructor. Readings and discussion in the prose, poetry, and drama to 1600. Mr. Plutschow

**179B. Readings in Edo Literature.** Lecture, three hours. Prerequisite: course 129. Readings and discussion in the prose, poetry, and drama from 1600 to 1868. Mr. Befu

**183. Introduction to Chinese Thought.** Lecture, three hours. Knowledge of Asian languages is not required. A general survey of indigenous Chinese thought from the Chou period to circa 1800 covers Confucianism, Taoism, Mo-tzu, the legalists, the influence of Buddhism, the development of neo-Taoism and neo-Confucianism.

**184. Introduction to Japanese Thought.** Lecture, three hours. Knowledge of Asian languages is not required. A general survey of Japanese thought from the earliest records to the Tokugawa period, with primary emphasis on indigenous elements. Deals with Shinto, the encounter of Shinto with Buddhism, philosophies of history, the growth of Japanese self-consciousness, the rise of new Shinto sects in the medieval period, Confucianism in the Tokugawa period, and the "National Learning" movement.

**188. Chinese Etymology and Calligraphy.** Prerequisite: one year of classical Chinese or consent of instructor. Covers (1) the development of the Chinese writing system from the "Pottery Inscriptions" 6,000 years ago to the modern "Simplified Forms" and the studies of the Six Scripts principles which were used to form Chinese characters and (2) the aesthetic training of calligraphic art and its appreciation, with focus on the ways of recognizing and interpreting the "Cursive Style," a common form of handwriting. Mr. Chou

**189. Chinese Brush Painting.** A combination studio-lecture course surveying the aesthetics and techniques of Chinese literati painting. Emphasis on realizing the philosophical ideals of critical treatises through mastery of the traditional materials and elements of landscape. Mr. Strassberg

**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 and consent of instructor. Required of senior majors. Special individual study. May be repeated once by consent of instructor.

## Graduate Courses

**203A-203B. Chinese Philosophical Texts.** May be repeated for credit by consent of instructor.

Mr. Strassberg

**213. Chinese Buddhist Texts.** May be repeated for credit by consent of instructor.

**214A-214B. Pali and Prakrits.** Prerequisites: knowledge of Sanskrit equivalent to course 161 and consent of instructor. Grammatical studies and reading of texts. Comparative considerations. Mr. Scharfe

**221A-221B. Introduction to Panini's Grammar.** Prerequisite: course 162 or equivalent. Reading of selected passages of the text, with an introduction to Panini's technique. Mr. Scharfe

**M222A-M222B. Vedic.** (Same as Iranian M222A-M222B.) Prerequisites: knowledge of Sanskrit equivalent to course 162 and consent of instructor. Characteristics of the Vedic dialect and readings in the Rig-Vedic hymns. Only course M222B may be repeated for credit. Mr. Schmidt

**223. Seminar: Linguistic Analysis of Japanese Narratives.** Prerequisite: course 175 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 by consent of instructor. Ms. Akatsuka

**229A-229B. Japanese Buddhist Texts.** May be repeated for credit by consent of instructor. Mr. LaFleur

**240. Advanced Chinese Classics.** Reading and discussion of selected works in classical Chinese, including various types of literary prose and historical narratives, with attention to stylistic features and historical development. May be repeated for credit by consent of instructor. Ms. Wong

**242A-242B. Japanese Classics:**

**242A.** Prose and Poetry to 1600.

**242B.** Prose and Poetry from 1600 to 1868. May be repeated for credit by consent of instructor. Mr. Befu

**244. Seminar in Traditional Chinese Fiction and Drama.** Prerequisite: reading knowledge of colloquial and literary Chinese. Seminar topics alternate yearly between traditional fiction and drama, with emphasis on generic, hermeneutical, and historical approaches. Topics in fiction are chosen from narrative genres from the Chou through the Ch'ing periods. Topics in drama are chosen from *tsa-chü* and *ch'uan-ch'i*. May be repeated for credit by consent of instructor. Mr. Strassberg

**245. Seminar in Modern Japanese Literature.** May be repeated for credit by consent of instructor.

**247. Selected Readings in Sanskrit Texts.** May be repeated for credit by consent of instructor. Mr. Scharfe

**250. Seminar in Medieval Japanese Literature.** Prerequisite: one year of classical Japanese. Selected readings in travel poetry, travel diaries, and other genres of Japanese travel literature of the Heian, Kamakura, Nambokucho, and Muromachi periods. May be repeated for credit by consent of instructor. Mr. Plutschow

**251. Seminar: Selected Topics in Modern Chinese Literature.** Prerequisite: consent of instructor. Selected readings in 20th-century Chinese literature, emphasizing fiction. Discussion of individual research projects. May be repeated for credit. Mr. Link

**252. Seminar: Selected Topics in Japanese Literature.** May be repeated for credit. Mr. Befu

**253. Seminar: Selected Topics in Japanese Buddhism.** May be repeated for credit. Mr. LaFleur

**255. Seminar: Selected Topics in Chinese or Indian Buddhism.** May be repeated for credit.

**261A-261B. Seminar in Classical Chinese Poetry.** Prerequisites: courses 152A and/or 152B, or consent of instructor. **261A.** Chinese poetry from the *Shih-ching* phase to the 6th century, with emphasis on the evolution of the lyric form during the Southern Dynasties (ca. 400-600). **261B.** The development of *shih* and *tz'u* from the T'ang period (ca. 600-900) and onward; traditional and modern critical approaches to classical Chinese poetry. Ms. Wong

**270. Seminar: Selected Topics in Chinese Archaeology.** Prerequisite: course 170A or 170B or consent of instructor. Discussion and research on major problems about Chinese archaeology and the different interpretations to the most important archaeological finds, with emphasis on the studies of the Xia and Shang cultures and the Xia and Shang dynasties. May be repeated for credit. Mr. Chou

**275. Seminar: Selected Topics in Chinese Cultural History.** Prerequisite: consent of instructor. Discussion and research on the major problems related to Chinese culture, such as beginnings of the Chinese civilization and the Chinese dynastic history. Other topics include the cultural developments of ancient and medieval China. May be repeated for credit. Mr. Chou

**285. Selected Topics in Buddhist Culture.** May be repeated for credit by consent of instructor. Mr. LaFleur

**295. Bibliography and Methods of Research in Chinese.** Required of all graduate students in Chinese. Lectures and discussion on the research methodology dealing with traditional Chinese materials, with emphasis on bibliography training (including the most up-to-date indexes in Chinese studies), punctuation practice, knowledge of textual criticism, and rare book editions. Mr. Chou

**296. Bibliography and Methods of Research in Japanese.** Required of all graduate students in Japanese. Mr. Befu

**301. Teaching an Oriental Language as a Foreign Language.**

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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.

You may repeat the courses below by consent of instructor; however, none may be applied toward the minimum course requirement for the M.A.

**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. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. S/U grading.

**596. Directed Individual Studies (4 to 12 units).** S/U grading.

**597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examination.** S/U grading.

**599. Research for and Preparation of Ph.D. Dissertation (4 to 12 units).** S/U grading.

## Related Courses in Other Departments

**Anthropology 166.** Comparative Minority Relations 175S. Japan

261. Comparative Minority Relations

**Art 114A.** The Early Art of India

114B. Chinese Art

114C. Japanese Art

C115A. Advanced Indian Art

C115B. Advanced Chinese Art

C115C. Advanced Japanese Art

260. Asian Art

**Education 253C.** Seminar: Asian Education

**English 100A.** Introduction to Poetry

140A. Criticism: History and Theory

140B. Criticism: Special Topics



201. The History of Literary Criticism  
**Geography** 186. Contemporary China  
 286. Eastern Asia  
**History** 182A-182B-182C. History of China  
 183. Modern China, 1840-1920  
 184. The Chinese Revolution  
 185. The Mongols in East Asian History  
 186. Diplomatic History of the Far East  
 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-282C. Seminar in Chinese History  
 285A-285B. Seminar in Modern Japanese History  
 293A-293B. Seminar in the History of Religions  
**Law** 278. Comparative Law: Chinese Law  
**Linguistics** 103. Introduction to General Phonetics  
 120A. Linguistic Analysis: Phonology  
 120B. Linguistic Analysis: Grammar  
 220. Linguistic Areas  
 225H. Linguistic Structures: Japanese  
 225P. Linguistic Structures: Chinese  
**Music** 81D. Music and Dance of China  
 81G. Music and Dance of Japan  
 81J. Music of Korea  
 141. Survey of Music in Japan  
 145. History of Chinese Opera  
 146A-146B-146C. Studies in Chinese Instrumental Music  
 147A-147B. Music of China  
**Political Science** 135. International Relations of China  
 136. International Relations of Japan  
 159. Chinese Government and Politics  
 160. Japanese Government and Politics  
 C250C. Seminars in Regional and Area Political Studies: Chinese and East Asian Studies  
 C250D. Seminars in Regional and Area Political Studies: Japanese and Western Pacific Studies  
**Sociology** 134. Comparative Social Institutions of East Asia  
 276. Selected Topics in the Sociology of East Asia

## East Asian Studies (Interdepartmental)

290 Royce Hall, 206-8235

### Scope and Objectives

This undergraduate major is designed for those who wish to study the Chinese- and Jap-

anese-speaking areas of East Asia and/or engage in business there. It offers a social science approach, combined with language study and work in the humanities.

### Bachelor of Arts Degree

#### Preparation for the Major

*Required:* History 9B-9C; East Asian Languages and Cultures 1A-1B-1C or 9A-9B-9C or a parallel Cantonese sequence; East Asian Languages and Cultures 11A-11B-11C or 19A-19B-19C. Students planning to pursue classical Chinese in the major will need East Asian Languages and Cultures 113A-113B-113C in addition to the above courses.

#### The Major

This consists of three parts:

- (1) Four courses from Anthropology 175S, Asian American Studies 100A, 100B, Geography 186, History 161, 182A, 182B, 182C, 183, 184, 187A, 187B, 187C, Political Science 135, 136, 159, 160, Sociology 134.
- (2) Five courses from the following: any upper division courses in the social sciences listed above not being used to satisfy that requirement; any upper division courses in the Department of East Asian Languages and Cultures not being used to satisfy other parts of the major requirements; any new upper division courses relevant to East Asian or Asian American studies (including no more than three CED courses) which may be approved by the Executive Committee of the College on the recommendation of the advisory committee; Art 114B, 114C, C115B, C115C; Dance 181A, 181C; Music 140B, 141, 145, 146A, 146B, 146C, 147A, 147B\*.
- (3) The prescribed courses in one of the following areas (courses offered to satisfy this requirement may not be applied toward other parts of the major requirements): (a) *archaeology*: any four courses from East Asian Languages and Cultures 170A, 170B, Anthropology 112\*, 115Q\*, 115R\*; (b) *geography*: Geography 132 or 133, 186, and two additional upper division geography courses; (c) *history*: four upper division or graduate courses in East Asian or Southeast Asian history (History 182A, 182B, 182C, 183, 184, 187A, 187B, 187C, 190A, 190B, 197 when in the East Asian field); (d) *political science*: Political Science 115\* and three courses from 135, 136, 159, 160, 161, C197 when in the East Asian field; (e) *sociology*: Sociology 124\* and three courses from 113\*, 126\*, 134\*, 151\*, 154.

\*Courses so marked have prerequisites which are not included among the courses mentioned here.

## Economics

2263 Bunche Hall, 825-1011

#### Professors

Armen A. Alchian, Ph.D.  
 William R. Allen, Ph.D.  
 Robert W. Clower, D.Litt.  
 Michael R. Darby, Ph.D.  
 Harold Demsetz, Ph.D.  
 Bryan C. Ellickson, Ph.D.  
 George W. Hilton, Ph.D.  
 Werner Z. Hirsch, Ph.D.  
 Jack Hirshleifer, Ph.D.  
 Michael D. Intriligator, Ph.D.  
 Benjamin Klein, Ph.D.  
 Edward E. Leamer, Ph.D.  
 Axel Leijonhufvud, Ph.D.  
 John J. McCall, Ph.D.  
 Joseph M. Ostroy, Ph.D.  
 John G. Riley, Ph.D.  
 Lloyd S. Shapley, Ph.D.  
 Harold M. Somers, Ph.D., LL.B.  
 Earl A. Thompson, Ph.D.  
 Finis R. Welch, Ph.D.  
 John F. Barron, Ph.D., *Emeritus*  
 Paul A. Dodd, Ph.D., LL.D., *Emeritus*  
 Earl J. Miller, Ph.D., LL.D., *Emeritus*  
 Dudley F. Pegrum, Ph.D., *Emeritus*

#### Associate Professor

George G. S. Murphy, Ph.D.

#### Assistant Professors

Sean R. Beckett, Ph.D.  
 Sebastian Edwards, Ph.D.  
 Daniel Friedman, Ph.D.  
 David D. Friedman, Ph.D.  
 John C. Haltiwanger, Ph.D.  
 David K. Levine, Ph.D.  
 Mark W. Plant, Ph.D.  
 Marc S. Robinson, Ph.D.  
 Kenneth Sokoloff, Ph.D.  
 Michael Waldman, Ph.D.

### Scope and Objectives

UCLA's Economics Department is ranked among the ten best in the nation according to a 1982 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. A Master of Arts program is also offered, which involves coursework and comprehensive examinations designed for the Ph.D. student.

## Bachelor of Arts in Economics

### Pre-Economics Major

While you are completing the lower division preparation courses for the major, you may be classified as a pre-economics major. When you have completed the preparation courses for the major and before you reach 100 quarter units (but no later than 135 quarter units), you must petition to enter the major at the undergraduate counselor's office in 2253 Bunche Hall.

**Please Note:** Students who have completed less than 72 quarter units as of the beginning of Fall Quarter 1984 must complete the following requirements for the degree. Students with 72 or more quarter units may complete the degree requirements in accordance with the 1982-83 *UCLA Undergraduate Catalog*.

### Preparation for the Major

**Required:** English 4; two social science courses other than economics; Economics 1, 2, 40 or 41 (or Management 115 or Mathematics 50 as a substitute for Economics 40); two courses in calculus (i.e., Mathematics 3A and 3B, or 3A and 3E, or 31A and 31B. Mathematics 3E is specifically designed for economics. You may not complete the calculus requirement with Mathematics 4A and/or 4B or their transfer credit equivalents). Each preparation course must be completed for a letter grade and with an overall 2.5 GPA. In addition, a 2.0 (C) grade is required in each premajor course, with a combined 2.5 GPA required in the economics and mathematics courses. You must petition for major standing by the time you attain 135 quarter units.

Repetition of any preparation course more than once will result in 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:** Ten upper division courses in economics which must include Economics 101A, 101B, 102, and at least one course in three different fields in economics selected from the list below (all courses must be completed for a letter grade). Economics 100 may not be included among the ten upper division courses. One or two of the ten courses may include Management 120 and/or 130 and/or 133 (Learning Center courses or courses transferred from other institutions may not be applied toward this option).

A grade of C or better is required in each of courses 101A, 101B, and 102. In addition, you must have a 2.0 grade-point average (computed separately) for both upper division economics and management courses applied toward the major (i.e., a grade-point deficiency in economics courses cannot be offset by grade points earned in management courses and vice versa). Transfer credit for any of the above is subject to department approval; consult the undergraduate counselor before enrolling in any courses for the major.

### Major Fields

Economic theory (courses 101A, 101B, 102, 103A-103Z, 104, 107); economic development (courses 111, 112); regional economics (courses 120, 121); public finance (courses 130, 133, M135A, M135B); statistics, mathematical economics, and econometrics (courses 141, 142, 144, 145, 146, 147A, 147B); labor economics (courses 150, 151, 152); money and banking (courses 160, 161); government and industry (courses 170, 171, 172, 173, 174, 175); economic institutions (courses 180, 181A, 181B, 182, 183); international economics (courses 191, 192).

## Economics/Business and Economics/International Area Studies Concentrations

Each concentration is described immediately following the Economics Department courses.

## Bachelor of Science in Economics/System Science

The degree is described following the Economics Department courses.

## Graduate Study

### Admission

Applicants for graduate study who satisfy the University minimum requirements are eligible to apply. It is strongly recommended that you have undergraduate training in economics, mathematics, and statistics. You must also submit a full record of prior university experience, three letters of reference, and your scores in the Graduate Record Examinations (Aptitude and Advanced Economics Tests).

The department admits students only for the Fall Quarter of each academic year. The deadline for submitting the admission/fellowship application is December 31.

### Major Fields or Subdisciplines

Economic theory; economic development; urban and regional economics; public finance; mathematical economics; statistics and econometrics; labor economics; money and banking; industrial organization; economic institutions; international economics; uncertainty and information.

## Master of Arts Degree

### Course Requirements

Candidates for the Master of Arts degree in Economics should have completed the equivalent of an undergraduate major in economics. The department requires nine upper division and graduate-level courses in economics completed in graduate standing at UCLA. These courses must include Economics 101A, 101B, and 102 with a grade of B or better and 107 with a grade of C or better.

Graduate-level courses in economic theory and history of economic thought may be substituted for these undergraduate courses. At least five of the nine courses must be strictly graduate economics courses.

You must also have completed, if not previously taken, two courses in calculus and one in statistics. Economics 144 may be used as one of the calculus courses and Economics 40 as the statistics course.

With the consent of the graduate chair, you may offer a maximum of two courses in other social sciences such as history, management, mathematics, psychology, education, or philosophy in partial satisfaction of the degree requirements; however, you must still take five graduate economics courses.

Four units of course 596 may be applied toward the total course requirement and the minimum graduate course requirement.

### Comprehensive Examination Plan

The comprehensive examination requirement for the master's degree may be met in one of the following three ways:

- (1) A conditional pass (C) or better in each of two full doctoral comprehensive examinations (C — is not acceptable);
- (2) A satisfactory pass (S) and a conditional pass (C) or better in each of two doctoral examinations, with one of the examinations being either the micro or macro half of the theory comprehensive;
- (3) A grade of S and two grades of C or better in the quantitative methods examination and each half of the theory comprehensive. If you achieve a B+ average in Economics 246B and

246C, you will automatically receive a satisfactory (S) grade in the quantitative methods examination.

(4) The macro and micro parts of the theory examination may be taken or repeated either separately or together, and the grades on each part will be recorded separately for meeting the requirements for the M.A. and Ph.D. degrees.

## Ph.D. Degree

### Foreign Language Requirement

Ph.D. candidates must offer one foreign language or a substitute program in mathematics prior to sitting for the University Oral Qualifying Examination. If the language option is selected, you will be required to show a proficiency in one language — French, German, Russian, or Spanish — by passing the Educational Testing Service (ETS) examination with a grade of 500 or better. Students whose native language is not English may substitute English for the language requirement by petitioning the Dean of the Graduate Division. If the mathematics substitute is selected, you must show proficiency in mathematics above that ordinarily required of Ph.D. candidates. Since elementary calculus is, as noted above, considered basic for all economists, the three required language-substitute courses must be at a level above first-year calculus. Specifically, Mathematics 32 and 110 or above fulfill the requirement.

### Course Requirements

The specific course requirements which must be fulfilled prior to taking the University Oral Qualifying Examination are the following:

(1) *Quantitative Methods*: The requirement may be satisfied in any of the following ways: (a) achieving a B+ average in Economics 246B and 246C; (b) achieving a B average in at least two quarters of the advanced econometrics sequence (courses 247, 248, 249); (c) passing the quantitative methods waiver examination administered at the beginning of Fall Quarter.

(2) *U.S. or European Economic History*: You must take one upper division undergraduate course in either United States or European economic history with a grade of B or better. Economics 181A, 181B, or 183 may be taken to satisfy this requirement.

(3) *History of Economic Theory*: You must take one upper division undergraduate course in the history of economic theory with a grade of C or better. Economics 107 may be taken to satisfy this requirement.

You may petition the graduate committee to substitute any one of the above requirements with comparable coursework taken at a previous institution.

### Qualifying Examinations

You are responsible for contacting the graduate adviser for additional regulations covering these examinations.

You are expected to take the theory comprehensive at the end of the Spring Quarter of your first year or in the beginning of the Fall Quarter of your second year. During the second and third years, you will have to pass further written examinations in three elective fields.

Written examinations are graded S (satisfactory pass), C (conditional pass), and U (unsatisfactory). You are considered to have completed your theory and elective field examinations when you have earned at least three S grades and one C grade. You may not be advanced to candidacy with more than one conditional grade on your record.

For the Ph.D. degree, the overall theory grade will be the lower of the grades on each of the macro and micro parts, except that if a C+ is achieved on one part and an S- or better on the other part, the overall theory grade will be an S-. Where a part has been taken more than once, the grade for that part will be the highest grade achieved at any sitting.

In order to be advanced to candidacy, you will be required to present a paper in a departmental workshop. It is recommended that this be done by the end of your third year.

The University Oral Qualifying Examination, administered by your doctoral committee, will be scheduled after successful completion of all the written examinations, other course requirements, and the foreign language requirement, and on the submission of a written dissertation proposal. The examination will focus on, but not be limited to, the dissertation proposal.

### Final Oral Examination

A final oral examination on the doctoral dissertation is required unless it is waived by the committee to supervise the dissertation.

### Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

### Lower Division Courses

1. *Principles of Economics*. Lecture, three hours; discussion, one hour. Not open to students with credit for course 100. An introduction to the 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. An introduction to the principles of economic analysis, economic institutions, and issues of economic policy. Emphasis on aggregative economics, including national income, monetary and fiscal policy, and international trade.

3. *Lower Division Research Seminar in Microeconomics*. Prerequisite: course 1. Limited to freshmen and sophomores. Seminar in which students do an intensive research project under guidance of regular faculty. Students select topics in consultation with instructor (topics limited to materials covered in course 1), write papers, and present them at the seminar.

4. *Lower Division Research Seminar in Macroeconomics*. Prerequisite: course 2. Limited to freshmen and sophomores. Seminar in which students do an 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.

40. *Introduction to Statistical Methods*. Lecture, three hours; discussion, one hour. Not open to students with credit for Mathematics 50A-50B, 150A-150B-150C, 152A-152B, or Management 115. 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.

41. *Statistics for Econometrics*. Lecture, three hours; discussion, one hour. Prerequisites: two courses in calculus. Not open to students with credit for course 40, System Science 120A, Mathematics 50A-50B, 150A-150B-150C, 152A-152B, or Management 115. Probability spaces and probability measures; conditional probability; random variables; expected values; the normal distribution; estimation and hypothesis testing. Specifically designed for students planning to take courses 147A, 147B. Mr. Levine

## Upper Division Courses

Courses 1 and 2, or 100 are prerequisite to all upper division courses in economics.

100. *Economic Principles and Problems*. Lecture, three hours. Not open to students with credit for course 1 or 2. Under special circumstances a student in upper division standing who earns B+ or better in course 100 may be permitted (by petition only) to substitute this course for Economics 1 and 2 on "Preparation for the Major." The principles of economics with applications to current economic problems.

101A. *Microeconomic Theory*. Lecture, three hours; discussion, one hour. Prerequisites: two courses in calculus or consent of instructor. The laws of demand, supply, returns, and costs; price and output determination in different market situations.

Mr. Hirshleifer, Mr. Ostroy, Mr. Riley

101B. *Microeconomic Theory*. Lecture, three hours; discussion, one hour. Prerequisite: course 101A. Theory of factor pricing and income distribution; general equilibrium; implications of the pricing process for the optimum allocation of resources; interest and capital.

Mr. Hirshleifer, Mr. Ostroy

102. *Macroeconomic Theory*. Lecture, three hours; discussion, one hour. Prerequisites: two courses in calculus or consent of instructor. Theory of income, employment, and the price level. Analysis of secular growth and business fluctuations; introduction to monetary and fiscal policy.

Mr. Clower, Mr. Darby, Mr. Thompson

103A-103Z. *Upper Division Research Seminar: Applications of Economic Theory*. (Formerly numbered 103.) Prerequisites: course 101A and others as set by instructor. Limited enrollment seminars in which the student usually writes a research paper on a topic chosen in consultation with instructor.

**M103A. Political and Economic Issues in the Proliferation of Nuclear Weapons.** (Same as Political Science M139.) The course provides an interdisciplinary approach to the problem of nuclear proliferation. It also deals with the economic aspects of the acquisition of nuclear weapons and economic aspects of nuclear energy treating technological, bargaining, and stability issues.

Mr. Intriligator (alternate years)

**103B. Economics of Energy.** Prerequisites: courses 101A, 101B, 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 the balance of payments, energy conservation, and future technologies.

Mr. Robinson

**104. Managerial Economics.** Lecture, three hours. Prerequisite: course 101A. Enrollment priority to economics/business students. Application of economic principles to business decisions. Costs and revenues relevant to business decisions. Problems in capital budgeting, financing, pricing, and forecasting. The role of interest rates in business decisions. Problems of estimating data important to business decisions.

**107. History of Economic Theory.** Lecture, three hours. A 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, the Mercantilists, the Physiocrats, Hume, Smith, Malthus, Ricardo, Marx, Marginalists, and Marshall.

Mr. Allen, Mr. Hilton

**110. Economic Problems of Underdeveloped Countries.** Lecture, three hours. Limited to non-Economics Department majors. A survey of the 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 Economics Department majors.

Mr. Edwards

**111. Theories of Economic Growth and Development.** Lecture, three hours. Prerequisite: course 101A. 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.

Mr. Edwards

**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.

Mr. Edwards

**120. Introduction to Urban and Regional Economics.** Lecture, three hours. Prerequisite: course 101A or consent of instructor. A survey of the 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 the local public sector.

Mr. Ellickson, Mr. Hirsch

**121. Urban Economic Analysis.** Lecture, three hours. Prerequisites: courses 101A, 101B, and 120, or consent of instructor. Urban economic analysis requires the development of analytical tools that are different in some respects from the standard methodology presented in course 101A or 101B. The course focuses on the construction and implementation of these tools, with applications to urban location decisions, housing, transportation, labor markets, and the local public sector.

Mr. Ellickson, Mr. Hirsch

**130. Public Finance.** Lecture, three hours. Prerequisites: courses 101A, 101B, or consent of instructor. Contrast between organization of economic activity by government and the private sector. Analysis of alternative norms for governmental activity. Methods of assessing benefits of alternative public expenditure projects and burdens of alternative forms of taxation. The use of fiscal policy to achieve economic targets. Techniques of debt management and their interaction with monetary policy.

Mr. Haltiwanger, Mr. Plant, Mr. Robinson

**133. State and Local Finance.** Lecture, three hours. Prerequisite: course 130. The division of functions and revenues between state and local governments; the revenues, expenditures, and indebtedness of these governments. Analyses of state and local tax systems.

Mr. Hirsch

**M135A. Economic Models of Public Choice.** (Formerly numbered M135.) (Same as Political Science M103A.) Prerequisites: course 101A, any lower division political science course other than Political Science 1, junior/senior standing, or consent of instructor. The course analyzes the methods and consequences of arriving at collective decisions through political mechanisms. Topics include the free-rider problem, voting and majority choice, demand revelation, and political bargaining.

Mr. Hirshleifer, Mr. Rogowski, Mr. Stein

**M135B. Economic Models of Political Conflict and Conflict Resolution.** (Same as Political Science M103B.) Prerequisites: course 101A, any lower division political science course other than Political Science 1, junior/senior standing, or consent of instructor. Biological, cultural, and organizational sources of political conflict. The role of threats, promises, commitments. Models of the onset and termination of conflict. The conduct of war: strategy and tactics.

Mr. Hirshleifer, Mr. Rogowski, Mr. Stein

**141. Principles of Statistical Decision.** Lecture, three hours. Prerequisite: course 40 or equivalent. Errors of the first and second kind; economic loss functions; prior probabilities and Bayes' theorem. Analysis of classical and Bayesian approaches. Application to inventory and production problems. The value of information and implications for sampling design.

Mr. Ellickson, Mr. Hirshleifer, Mr. McCall, Mr. Ostroy

**142. Probabilistic Microeconomics.** Lecture, three hours. Prerequisites: courses 40 (or 41) and 101A, 101B. The course combines the basic probability introduced in course 40 (or 41) with the microeconomic models presented in courses 101A and 101B in order to explain phenomena such as insurance, job search, and stock market behavior. Optimal production and consumption under uncertainty are also addressed. The course begins with a review of probability and an introduction to alternative measures of risk and risk aversion.

Mr. McCall

**144. Introduction to Mathematical Methods in Economics.** Lecture, three hours. Prerequisites: courses 101A, 101B, and two courses in calculus. An introduction to the use of calculus 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.

Mr. Ellickson, Mr. Intriligator, Mr. Riley

**145. Topics in Mathematical Economics.** Lecture, three hours. Prerequisite: course 144. Possible topics include theory of economic growth; competitive equilibrium analysis; examination of market failure and the role for market intervention.

Mr. Ellickson, Mr. Ostroy

**146. Linear Models in Economics.** Lecture, three hours. Prerequisite: a course in linear or matrix algebra. Not open for credit to students with credit for Mathematics 144 or System Science 129A. Possible topics include the duality theory of linear programming and the simplex algorithm, input-output analysis, and two-person zero-sum games.

Mr. McCall, Mr. Ostroy (Sp)

**147A. Introduction to Econometrics.** (Formerly numbered 147.) Lecture, three hours. Prerequisites: two courses in calculus and course 41 (or Mathematics 150A-150B or 152A-152B), or consent of instructor. An introduction to econometrics, including a review of matrix algebra and statistical theory; the linear regression model; model specification; data collection; estimation and hypothesis testing; and an introduction to simultaneous equations models. An original econometric paper is required.

Mr. Ellickson, Mr. Intriligator, Mr. Levine

**147B. Applications of Econometrics.** (Formerly numbered 147.) Lecture, three hours. Prerequisite: course 147A. Econometric models and data; forecasting, policy analysis, estimation of simultaneous equations models, applications of econometrics. A major original econometric paper is required.

Mr. Ellickson, Mr. Intriligator, Mr. Levine

**150. Wage Theory.** Lecture, three hours. Prerequisites: courses 101A, 101B, or consent of instructor. The supply and demand for labor. Analysis of government, union, and other constraints on the competitive system of wage determination. Wage level and structure. Wages and human capital theory.

Mr. Haltiwanger, Mr. Plant, Mr. Waldman

**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.

Mr. Hilton

**160. Money and Banking.** Lecture, three hours. Recommended prerequisite: course 102. Principles of money and banking in the United States; legal and institutional framework; money supply process; instruments, effects, and practice of monetary policy.

Mr. Darby, Mr. D. Friedman

**161. Monetary Theory.** Lecture, three hours. Prerequisite: course 160. The 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.

Mr. Clower, Mr. Darby

**170. Monopoly and Competition.** Lecture, three hours. Prerequisite: course 101A. A 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. The general problem of the relationship between private rights of action and competitive entry.

Mr. Demsetz, Mr. Klein

**171. Industrial Organization: Theory and Tactics.** Lecture, three hours. Prerequisite: course 101A. 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.

Mr. Demsetz, Mr. Klein

**172. Economic Analysis of Laws and Legal Institutions.** Lecture, three hours. Prerequisite: course 101A. Application of economic theory to legal rule formulation: study of the 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 the legal process.

Mr. Demsetz, Mr. Hirsch

**173. Centralized Markets.** Lecture, three hours. Prerequisite: course 101A. Enrollment priority to economics/business students. Organization and function of stock, bond, commodity, and foreign exchange markets. Theory and evidence relating to the efficiency of these markets in evaluating information, to their role in facilitating risk-bearing and capital allocation. The interrelationship between business finance and organized capital markets.

Mr. Demsetz, Mr. Klein

**174. The Organization of the Firm.** Lecture, three hours. Prerequisite: course 101A. Enrollment priority to economics/business students. The role of the firm in traditional economic theory and modern developments in the theory of the firm. The functions of ownership and management in the face of risk and opportunism. The internal organization of the firm. The problem of separation of ownership from control in the modern corporation. Determinates of firm size, vertical integration, and degree of specialization of the activities of firms. Decision making within the firm in a democratic setting.

Mr. Demsetz, Mr. Klein

**175. Economics of Transportation.** Lecture, three hours. Recommended prerequisite: course 101A. The economic characteristics of transport; the functions of the different agencies; pricing and resource allocation in transport; public regulation of transport; urban transport; the modern transport problem.

Mr. Hilton

**180. Comparative Economic Systems.** Lecture, three hours. Prerequisites: courses 101A, 101B. A comparative analysis of capitalist and socialist economies. Pure models; attention to actual economies selected in the light of those models and the march of events.

Mr. Murphy

**181A. Development of Economic Institutions in Western Europe.** (Formerly numbered C181.) Lecture, three hours. Prerequisite: upper division standing. European economic history, 900-1700. Custom, command, and market modes of organization. Evolution of property rights, contract forms, and monetary arrangements. Decline of feudal institutions, especially serfdom. The open field village and enclosures. Crafts manufacturing and guild organization. Development of banking. Public finances and the role of government. (Course is offered approximately every third year.)

**181B. Development of Economic Institutions in Western Europe.** (Formerly numbered C181.) Lecture, three hours. Prerequisite: upper division standing. European economic history, 1700-1914. The industrial revolution in Britain and its spread to the continent. The rise of factories, industrial firms, and unions. Changes in the standard of living and demographic consequences. Imperial expansion and the decline of Britain. Worldwide diffusion of economic growth and the Gerschenkron hypothesis.

Mr. Sokoloff

**182. Centralized Economics Systems.** Lecture, three hours. Prerequisites: courses 101A, 101B. The course provides an introduction to the theory of centralized systems and an examination of some centralized economies. Considerable attention to the economy of the U.S.S.R.; some attention to other economies selected in light of the centralized model and with a view to the march of current events.

Mr. Murphy

**183. Development of Economic Institutions in the United States.** Lecture, three hours. A study of the changing economic conditions in the U.S. from Colonial times to the early 20th century and the effects of these changes on American society.

Mr. Sokoloff

**190. International Economics.** Lecture, three hours. Limited to non-Economics Department majors. Not open for credit to students with credit for course 191 or 192. A general introduction to international economics, based on an examination of the 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 Economics Department majors.

Mr. Beckett

**191. International Trade Theory.** Lecture, three hours. Prerequisite: course 101B. Not open to students with credit for course 190. The theory of international trade: the bases, direction, terms, volume, and gains of trade. The effects of tariffs, quantitative restrictions, and international integration. The 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 the interpretation of the balance of payments and the 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.

Mr. Friedman

**199. Special Studies in Economics (2 or 4 units).** Prerequisites: courses 101A and 101B, junior/senior standing, and consent of instructor. May be repeated but may be applied only once toward the major requirements.

## Graduate Courses

**201A. Theory of Consumption and Exchange.** Preferences, demand, exchange, pricing, and markets in an exchange economy. Emphasis on derivation and interpretation of theorems and is illustrated by applications.

Mr. Hirshleifer

**201B. Theory of Production and Distribution.** Theory of the firm, with particular attention to the demand for factors of production in the short- and long-runs. May cover an introduction to general equilibrium theory and welfare economics.

Mr. Welch

**201C. Theory of Interest and Capital.** Covers the topics of intertemporal choice and equilibrium, interest, and accumulation of capital, decisions under uncertainty, and the allocation of risk.

Mr. Alchian

**202A. Macroeconomics I (Macrostatics).** The Keynesian income-expenditure approach. Expenditures functions. Money demand and supply functions. The IS-LM Model and its extensions. Large-scale macroeconomic models.

Mr. Darby, Mr. Leijonhufvud

**202B. Macroeconomics II (Macrodynamics).** The neoclassical growth model. Money and growth. Adjustment dynamics. Rational expectations. Unemployment and inflation. The Keynesian monetarist controversy. International macroeconomics. Stabilization policy.

Mr. Darby, Mr. Leijonhufvud

**202C. Macroeconomics III (Disequilibrium Approaches and Critiques).** Microfoundations. The Wicksellian theme. Keynes and the classics. Theory of effective demand failures. Critiques and critics of mainstream macroeconomics.

Mr. Darby, Mr. Leijonhufvud

**M203A. Economics of Decision.** (Same as Management M203A.) Prerequisites: rudiments of economic theory, calculus, and probability of statistics. Norms and facts of decision making in the household, business, and government. Consistent behavior in terms of personal utilities and probabilities. Multi-attribute value theory. Departures from consistency: descriptive theories of behavior and resulting models.

Mr. Sarin

**M203B. Economics of Information.** (Same as Management M203B.) Prerequisites: rudiments of economic theory of the firm, calculus, and probability of statistics; course M203A 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.

Mr. Lippman

**M203C. Economics of Organization.** (Same as Management M203C.) Prerequisites: courses M203A, M203B. Rational models of teams. Relation to the theory of games.

**204A-204H. Applications of Economic Theory.** (Formerly numbered 204A-204B-204C.) Lecture, three hours.

**207. History of Economic Theory.** Mr. Allen

**211. Economic Development.** Prerequisite: graduate standing in economics or consent of instructor. General survey of current literature, emphasizing empirical tests of development theories.

Mr. Edwards

**212. Applied Topics in Economic Development.** Prerequisite: course 211 or consent of instructor. Applications of theories of development to case studies, including project analysis, policy-making at the national level, and economic planning. Occasionally the course focuses on a single applied research area for the entire quarter.

Mr. Edwards

**213A-213B. Selected Problems of Underdeveloped Areas.** Seminars for graduate students.

**221. Urban and Regional Economic Analysis I.** Development of theoretical and empirical analysis of the major urban markets, including land and housing, transportation, labor, and the local public sector. Interdependencies within and between these markets are given particular emphasis.

Mr. Ellickson, Mr. Hirsch

**222. Urban and Regional Economic Analysis II.** Prerequisite: course 221. Development of theoretical and empirical analysis of the major urban markets, including land and housing, transportation, labor, and the local public sector. Interdependencies within and between these markets are given particular emphasis.

Mr. Ellickson, Mr. Hirsch

**231. Public Finance.** Criteria for organization of economic activity by government and the private sector. Use of cost-benefit analysis in selection of proposed public projects. Effects of various taxes. Use of tax policy in influencing level of economic activity and distribution of wealth. Debt management and its interaction with monetary and fiscal policy.

Mr. Somers

**232. Economics of Government Expenditures.** Evaluation of various areas of government expenditure on basis of efficiency and other criteria. Selection of appropriate discount rate. Use of program budgeting techniques to control expenditure. Areas covered include education, judicial system, prison reform, reclamation, health insurance, child care, energy conservation, regulatory activity, defense.

Mr. Somers

**233. Topics in Public Finance.** Lecture, three hours. After a discussion of tax incidence and optimal taxation, various taxes are analyzed: personal income, corporate income, property, capital gains, consumption, and windfall profits. Both the excess burden and the incidence of these tax policies are examined, with emphasis on the different types of models economists have used to consider these questions. Other topics of current interest may be covered from year to year.

**234. Economics of Federalism.** Theories of perfect games and social organization. Collective goods, collective defense, and the role of government. Local public goods, spillovers, and intergovernmental relations.

Mr. Thompson

**M240. Control and Coordination in Economics.** (Same as System Science M222G.) Prerequisites: graduate standing in economics or engineering, 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.

Mr. Aoki

**241A-241B-241C. The Economics of Uncertainty and Information.** Prerequisites: calculus and introductory probability. The sequence begins by examining how individuals adapt to the fact of uncertainty, with special emphasis on topics such as private versus social risk, adverse selection and moral hazard, and asset pricing under uncertainty. It next explores the ways in which individuals overcome uncertainty by engaging in informational activities. Topics include speculation, innovation, market signaling, and rational expectations. Third, the emphasis switches from event uncertainty to market uncertainty. Topics include price searching, queueing, Brownian motion, and auction design.

Mr. Hirshleifer, Mr. McCall, Mr. Riley

**242A-242B. Game Theory.** Lecture, three hours. Prerequisites: course 245A or suitable mathematics courses. Elements of the theory of cooperative and noncooperative games, with applications to economic models. Strategic and coalitional games, minimax, Nash-Cournot equilibrium, bargaining theory, the core, value, and other solution concepts; applications to oligopoly, general exchange and production economies, allocation of joint costs.

Mr. Shapley

**243A-243B-243C. Workshop in Mathematical Economic Theory.** Prerequisite: consent of instructor. Workshop for dissertation writers and pre-dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper is required. S/U grading.

Mr. Intriligator, Mr. Ostroy, Mr. Riley

**244. Economic Modeling.** Course is designed to help students learn to switch back and forth from the precise language of mathematics, as they analyze economic phenomena. Emphasis on the techniques of multivariate constrained optimization. Modeling skills are developed by considering a sequence of economic issues (e.g., peak load pricing, regulation monopoly, capital asset pricing, Pareto efficiency).

Mr. McCall, Mr. Riley

**245A-245B-245C. Advanced Theory and Mathematical Economics.** Prerequisite: course 201C or equivalent or consent of instructor. Selected advanced theoretical topics of current interest and an introduction to modern mathematical economics (including general equilibrium theory).

Mr. Intriligator, Mr. Ostroy, Mr. Riley

**246B. Introduction to Theory of Econometrics.** Least-squares regress, generalized least squares, serial correlation, errors-in-variables, simultaneous equations, multicollinearity.

Mr. Intriligator

**246C. Applications of Econometrics.** Selected econometric studies of consumption, investment, asset demand production functions, goods markets, factor markets, industrial organization, public finance, international trade. Course includes instruction on use of computer. Students are expected to write a research paper.

**247. Single Equation Econometrics.** Linear regression, specification error, autocorrelation, nonnormality, nonlinear estimation, outliers, qualitative dependent variables, aggregation structural change.

Mr. Leamer

**248. Multiple Equation Econometrics.** Multivariate regression, error-in-variables, simultaneous equations, proxy variables (latent variables).

Mr. Intriligator, Mr. Leamer

**249. Special Topics in Econometrics.**

Mr. Intriligator, Mr. Leamer, Mr. McCall

**251. Labor Economics I.** Analysis of wage determination in competitive labor markets. Wage determination extends to schooling and occupational choice. Empirical literature of life cycle earnings profiles is examined. Special topics include discrimination, minimum wage legislation, and unionism.

Mr. Welch

**252. Labor Economics II.** Prerequisite: course 251. Models of life cycle learning and work behavior together with one-period models of labor supply. Special emphasis on the recent literature of family decisions concerning labor supply behavior of women.

Mr. Welch

**253. Labor Problems.**

Mr. Welch

**254A-254B-254C. Studies in Human Resource Economics.** Prerequisite: consent of instructor. Workshop for dissertation writers and pre-dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. S/U grading.

Mr. Welch

**261. Monetary Economics I.** Prerequisites: courses 202A, 202B, 202C. The existence of money; financial institutions and markets; supply of money; demand for money; money and wealth; money and growth; money and fluctuations in real income, employment, and inflation; interest rates; international monetary arrangements; monetary policy.

Mr. Clower, Mr. Leijonhufvud, Mr. Thompson

**262. Monetary Economics II.** Prerequisites: courses 202A, 202B, 202C. The existence of money; financial institutions and markets; supply of money; demand for money; money and wealth; money and growth; money and fluctuations in real income, employment, and inflation; interest rates; international monetary arrangements; monetary policy.

Mr. Clower, Mr. Leijonhufvud, Mr. Thompson

**263A-263B-263C. Studies in Monetary Economics.** Prerequisite: consent of instructor. Workshop for dissertation writers and pre-dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper is required. S/U grading.

Mr. Darby

**271. Industrial Organization, Price Policies, and Regulation: Theory.** Analysis of the institutional resolution of the problem of economic organization. Major economic aspects of the property right system underlying these institutions are analyzed. The firm and the market are then compared from the perspective of alternative arrangements for allocating resources. Traditional problems of competition, monopoly, and industrial concentration are discussed. Course concludes with brief analysis of those portions of antitrust policy bearing on industrial structure.

Mr. Demsetz

**272. Industrial Organization, Price Policies, and Regulation: Policy.** Prerequisite: course 271. 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.

Mr. Klein

**273. Public Utility Regulation.** Theory, practice, and consequences of regulation in electric power, gas, water, telecommunications, broadcasting, and other regulated industries; experience of unregulated monopoly and public enterprises by way of contrast.

Mr. Hilton

**275. National Transport Policy.** Regulation of surface and air carriers; pricing and investment in public transport facilities; policy toward the merchant marine.

Mr. Hilton

**277A-277B-277C. Workshop in Law and Economics.** Prerequisites: graduate standing, consent of instructor. Workshop for dissertation writers and pre-dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper is required. S/U grading.

Mr. Demsetz, Mr. Klein

**279A-279B-279C. Dissertation Research Workshop in Economic Organization.** Discussion, three hours. Prerequisite: consent of instructor. A workshop for advanced graduate students writing dissertations in the areas of transaction and information costs and the role these costs play in economic organizations and market processes. S/U grading.

Mr. Alchian, Mr. Demsetz, Mr. Klein

**281. Evolution of Economic Institutions in Western Europe.** (Formerly numbered C281.) Lecture, three hours. Prerequisite: graduate standing or consent of instructor. Seminar on selected topics in European economic history, with emphasis on theoretical analysis of institutions and institutional change. Examples: theories of serfdom and its disappearance, open field system and enclosures, social classes and class conflict, guild vs. factory organization of manufacturing.

Mr. Leijonhufvud

**282. Soviet Economic Theory and Organization.** Course deals with the overall strategy of planning used by U.S.S.R. planners and with specific planning methods. Method is interpreted broadly to cover not only instructions and objectives but also institutional arrangements. Intended and unintended outcomes of the methods are examined.

Mr. Murphy

**283. Evolution of Economic Institutions in the United States.** An introduction to the professional literature of American economic history and to the most important substantive issues raised therein.

Mr. Sokoloff

**291. International Trade Theory.** Theoretical and empirical analysis of the microeconomic relationships among countries. The determinants of commodity and factor flows, prices, and factor rewards. The effects of trade barrier.

Mr. Allen, Mr. Leamer

**292. International Finance.** Theory of evidence on the balance of payments, exchange rate determination, international transmission of inflation and business cycles, macroeconomic policy in open economies, alternative monetary systems.

Mr. Allen, Mr. Leamer

**293A-293B. International Economics: Selected Topics.** (Formerly numbered 293.) Lecture, three hours. The course combines student presentation of dissertation research, lectures by visiting experts and resident faculty members, and student discussion of current published research. The objective is to expose students to critical analyses of their work and to suggest dissertation topics. S/U grading (based on oral and written performance).

Mr. Leamer

**299A-299B-299C. Workshop for Preparing a Dissertation Proposal.** (Formerly numbered 299.) Lecture, three hours. Workshop for third-year graduate students who are preparing for their oral qualifying examination. During the first part of the course, students present journal articles for critical analysis by fellow students and faculty. Workshop is 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. A teaching apprenticeship under the 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. The Teaching of Economics I (2 units).** Limited to teaching assistants handling one or more of the quiz sections in Economics 1. Approximately 20 hours divided between meetings of instructor with all section heads to discuss problems of exposition and structuring of course materials, etc., and visits of instructor to the sections of each teaching assistant. May not be applied toward degree requirements. May be repeated twice for credit. S/U grading.

**402. The Teaching of Economics II (2 units).** Limited to teaching assistants handling one or more of the quiz sections in Economics 2. Approximately 20 hours divided between meetings of instructor with all section heads to discuss problems of exposition and structuring of course materials, etc., and visits of instructor to the sections of each teaching assistant. May not be applied toward degree requirements. May be repeated twice 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 examination. 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/ Business

2253 Bunche Hall, 825-1011

### Scope and Objectives

This program within the Economics Department is for students who wish a business orientation in their undergraduate studies. It is designed for those who plan careers in management, accounting, banking, or finance. The major is NOT designed to be adequate preparation for the CPA examination. It consists of the basic economics major plus appropriate courses offered by the Graduate School of Management.

### Bachelor of Arts Degree

#### Admission

Resources for the program are limited, and only 250 students per year are admitted. Applications for admission are handled exclusively by the Department of Economics and are available only once or twice a year. To apply you must have completed at least 72 quarter units, one 12-unit quarter of residence in regular session at UCLA, and all courses listed under "Preparation for the Major." In addition, you must be enrolled in UCLA regular session at the time of application and have an overall grade-point average of 3.0 (B) AND an average of 3.0 in the economics courses, computed separately.

Note: The requisite grade-point averages plus completion of the "Preparation for the Major" do not guarantee admission to the program. Admission is on a competitive basis, using the above qualifications as minimum standards for consideration.

#### Preparation for the Major

**Required:** Economics 1, 2, 40 or 41 (or Mathematics 50); Management 1A, 1B; Mathematics 3A and 3B, or 3A and 3E, or 31A and 31B (Mathematics 3E is specifically designed for economics). All courses must be completed for a letter grade.

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:** Economics 101A, 101B, 102; six other upper division courses in economics in at least two different fields (Economics 104, 170, 173, 174 are recommended); four upper division courses from Management 120, 122, 130, 133, 140, and tax accounting (check quarterly with the department for correct I.D. number). Learning Center courses or courses transferred from other institutions, including UCLA Extension, may not be applied toward the management part of the major. Recommended: a course in elementary computer programming (e.g., Computer Science 10C or 10F or 10S). All major courses must be completed for a letter grade. Transfer credit for any of the economics courses is subject to department approval; consult the undergraduate counselor or before enrolling in any courses for the major.

You must maintain a 3.0 grade-point average throughout your program and must have a 3.0 GPA (computed separately) for both management and economics courses in order to remain in the major (i.e., a grade-point deficiency in economics courses cannot be offset by grade points earned in management courses and vice versa when computing the upper division grade-point minimum).

For further information, contact Sheryl Massis, Economics, 2253 Bunche Hall (825-1011).

## Economics/ International Area Studies

2263 Bunche Hall, 825-1011

### Scope and Objectives

This program within the Economics Department is for students who wish to attain a 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 foreign study programs. Experience in foreign firms or institutions would be an advantage but yields no academic unit credit toward the major.

## Bachelor of Arts Degree

#### Admission

Qualified students must submit written applications to the undergraduate counselor in 2253 Bunche Hall to be admitted. To apply you must have completed at least 72 quarter units, one 12-unit quarter of residence in regular session at UCLA, and all courses listed under "Preparation for the Major." In addition, you must be enrolled in UCLA regular session at the time of application. Each preparation course must be completed for a letter grade and with an overall 2.5 GPA. In addition, a minimum 2.0 (C) grade is required in each preparation course, with a combined 2.5 GPA in the economics and mathematics courses. Language course preparation need not be completed at the time of admission but must be completed before preparing the research paper required in Economics 199. Your program as a whole must be approved by the Economics faculty adviser before you are admitted to the major; you must apply before you reach 135 quarter units.

#### Preparation for the Major

**Required:** Two social science courses other than economics; Economics 1, 2, 40 or 41 (or Management 115 or Mathematics 50 as a substitute for Economics 40); two courses in calculus (i.e., Mathematics 3A and 3B, or 3A and 3E, or 31A and 31B. Mathematics 3E is specifically designed for economics. You may not complete the calculus requirement with Mathematics 4A and/or 4B or their transfer credit equivalents). You also must complete the sixth quarter course (or equivalent) of any modern language (e.g., French 6, German 6, Russian 6, Spanish 25; these are most frequently offered in fulfillment of this requirement, but also see the offerings under Portuguese, Italian, Germanic Languages, Near Eastern Languages, African Languages, and East Asian Languages and Cultures).

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 15 upper division courses selected from economics and the list of "Approved Noneconomics Courses" below. Eleven must be from economics, including Economics 101A, 101B, 102 (with a grade of C or better in each), 191, 192, 199, and five courses from at least two different fields in economics (selected from the "Major Fields" listed under the regular economics major). Four of the remaining upper division courses must be chosen from the approved list below and must include selections from at least two different departments. Economics 199 must be completed in your last quarter before graduation and includes the preparation of a research paper on the economy of the country or region of



your specialization, sponsored and supervised by an Economics faculty member. Sources in the language of the region or country must be utilized. The noneconomics courses, the research paper, and the language learned must show consistency of purpose.

One or two of the five upper division economics electives may include Management 120 and/or 130 and/or 133 (Learning Center courses or courses transferred from other institutions may not be applied toward this option). A 2.5 GPA (computed separately from the economics courses) is also required in the management courses applied to this option.

Transfer credit for any courses to be applied toward the upper division requirements is subject to department approval; consult the undergraduate counselor before enrolling in any courses for the major.

To remain in the major you must maintain a 2.5 GPA for both economics and noneconomics courses, computed separately (i.e., a grade-point deficiency in economics courses cannot be offset by grade points earned in noneconomics courses and vice versa).

### Approved Noneconomics Courses

Anthropology 171, 175P, 175Q, 175R, 175S, 176, 177; Geography 181, 182A, 182B, 183, 184, 185, 186, 187, 188, 189, 190; History 106C, 107B, 108A, 109B, 110B, 111B, 112C, 113, 125E, 126E, 128D, 129C, 131C, 131D, 132B, 133B, 134B, 141B, 142A, 142B, 143, 144, 167A, 167B, 167C, 171, 173, 176B, 177, 178A, 178B, 179B, 184, 187C, 188B, 190B; Political Science 152 through 165, 166A, 166B, 166C; Sociology 130, 131, 132, 133, 134.

## Economics/System Science (Interdepartmental)

4532 Boelter Hall, 825-6830

### Professors

Masanao Aoki, Ph.D. (*Engineering/System Science*)  
Bryan C. Ellickson, Ph.D. (*Economics*)  
Michael D. Intriligator, Ph.D. (*Economics*)  
Stephen E. Jacobsen, Ph.D. (*Engineering/System Science*)  
Bruce L. Miller, Ph.D. (*Engineering/System Science*)

### 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

### Preparation for the Major

**Required:** Economics 1 and 2; Computer Science 10C or 10F; Mathematics 31A, 31B, 32A, 32B, 33A, 33B. All courses must be completed for a letter grade of C- or better.

At least six of the preparatory courses must be completed before admission to the major. In addition, at the time of admission you must have a grade-point average of at least 2.5 in preparatory work.

### The Major

**Required:** Fourteen upper division courses (completed for a letter grade of C- or better) as follows: six courses in economics selected from Economics 101A and above, including 101A, 101B, 102, and one course from 144, 145, 146, 147A, 147B; six courses in system science selected from System Science 120A through 129A, including 120A (or Mathematics 150A), 120B and/or Mathematics 151; 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 System Science 121A, 122A, 128A in the area of dynamic systems analysis and System Science 129A, 129L in the area of optimization.

The major is administered by an interdepartmental committee of faculty members selected from the Departments of Economics and System Science. For further information, contact the System Science departmental administrator in the program office.

## Education

The College of Letters and Science offers a program of courses through which you may earn a credential to teach in California elementary schools. For details, see "Diversified Liberal Arts" earlier in this chapter.

## English

2225 Rolfe Hall, 825-4173

### Professors

Michael J. B. Allen, Ph.D.  
Martha Banta, Ph.D.  
Calvin Bernard Bedient, Ph.D.  
Charles Ashton Berst, Ph.D.  
A. R. Braunnmuller, Ph.D.  
Daniel G. Calder, Ph.D., *Chair*  
Vinton A. Dearing, Ph.D.  
Robert William Dent, Ph.D.  
Reginald A. Foakes, Ph.D.  
Patrick K. Ford, Ph.D.  
Robert A. Georges, Ph.D.  
Gerald Jay Goldberg, Ph.D.  
George Robert Guffey, Ph.D.  
Charles Bennett Gullans, Ph.D.  
Henry Ansgar Kelly, Ph.D., *Vice Chair*  
Jascha Kessler, Ph.D.  
Robert Starr Kinsman, Ph.D.  
Richard Alan Lanham, Ph.D.  
Richard D. Lehan, Ph.D.  
Maximilian Erwin Novak, D.Phil., Ph.D.  
Joseph N. Riddel, Ph.D.  
Florence Ridley, Ph.D.  
Alan Henry Roper, Ph.D.  
George S. Rousseau, Ph.D.  
William David Schaefer, Ph.D.  
Paul Roland Sellin, Ph.D.  
Paul Douglas Sheats, Ph.D.  
Georg Bernhard Tennyson, Ph.D.  
Peter Larsen Thorslev, Jr., Ph.D.  
Alexander Welsh, Ph.D.  
D. K. Wilgus, Ph.D.  
Thomas Richard Wortham, Ph.D.  
Ruth B. Yeazell, Ph.D.  
Stephen Irwin Yenser, Ph.D.

### Emeritus Professors

Robert Martin Adams, Ph.D.  
John Jenkins Espey, B.Litt., M.A.  
Robert Paul Falk, Ph.D.  
Charles V. Hartung, Ph.D.  
Paul Alfred Jorgensen, Ph.D.  
Blake Reynolds Nevius, Ph.D.  
Ada Blanche Nisbet, Ph.D.  
Franklin Prescott Rolfe, Ph.D.

### Associate Professors

Walter Eldon Anderson, Ph.D.  
Charles Linwood Batten, Jr., Ph.D., *Vice Chair*  
Frederick Lorrain Burwick, Ph.D.  
Edward Ignatius Condren, Ph.D.  
Ronald E. Freeman, Ph.D.  
James Edward Goodwin, Ph.D.  
Christopher Waldo Grose, Ph.D.  
Albert David Hutter, Ph.D.  
Gordon L. Kipling, Ph.D.  
Jack Kolb, Ph.D.  
Kenneth Robert Lincoln, Ph.D.  
Robert M. Maniquis, Ph.D.  
Barbara Lee Packer, Ph.D.  
Raymund Arthur Paredes, Ph.D.  
Jonathan F.S. Post, Ph.D.  
Karen Elizabeth Rowe, Ph.D.

### Assistant Professors

Susan Brienza, Ph.D.  
Joseph F. Nagy, Ph.D.  
Jeffrey Rubin-Dorsky, Ph.D.  
J. Fisher Solomon, Ph.D.  
Seth Joshua Weiner, Ph.D.  
Richard Alan Yarbrough, Ph.D.

**Senior Lecturers**

David Stuart Rodes, Ph.D.  
 Jerome Cushman, A.B., B.S.L.S., *Emeritus*  
 Everett L. Jones, M.A., *Emeritus*

**Adjunct Professor**

Brian Moore

**Scope and Objectives**

An interest in English and American literature draws many students to the Department of English, which also offers courses in other fields, including the history and structure of the English language itself. Although committed to no single method or approach, the department encourages an emphasis on literary history and requires of its undergraduate majors a firsthand acquaintance with such influential writers as Chaucer, Milton, and Shakespeare. Students may range outward from this core to a rich variety of other fields — literary criticism, for example, or the ethnic literatures and popular culture of America, or the relation of literature to such complementary disciplines as history, sociology, psychology, and philosophy. Qualified students may elect a concentration in creative writing or an interdisciplinary program in American studies.

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 two-year graduate program leading to the Master of Arts degree is often selected by students planning a career in community college teaching. A second program leads to the Ph.D. degree. As this may require six 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.

**Bachelor of Arts Degree****Admission to Courses in English**

You must have completed the Subject A requirement before taking any courses in English (other than English A or 1). For further information regarding Subject A, see "Undergraduate Degree Requirements" in Chapter 2.

**Preparation for the Major**

*Required:* English 3, 4, 10A, 10B, 10C taken in the stated sequence (each course is a prerequisite for the next course).

*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) any combination of five courses in foreign language and foreign literature, including foreign literature in translation (see course listings later in this section of the catalog). For option 2, the department especially recommends Classics 144, Humanities C107, 116. These courses may be taken P/NP.

**The Major**

*Required:* English 141A or 141B, 142A, 142B, 143, at least one course from the 180 series, and a minimum of seven additional upper division English courses. At least five of the seven courses must be selected from 140A or 150 through 190. At least one of the seven courses must be in literature before 1800 (the 150 series).

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; the department especially recommends Classics 144, 161, Humanities C107, 116.

**Special Programs**

The department offers special programs in American studies and general literature. For both 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 planning to do graduate work in English should consult the departmental counselor before selecting either of these.

**American Studies:** This program consists of nine upper division courses in English and six related upper division courses taken in other departments. The nine English courses must include 109 and 175; two courses from 142A, 142B, 143; three courses from 170, 171, 172, 173, 174; and one course pertaining to American studies selected from the 180 or 190 series, taken preferably in the senior year. Of the six upper division courses in other departments, four must be in a selected discipline (history, political science, art, etc.). One of the four courses must deal with the methodology of the discipline, while the other three must explicitly treat American culture. The courses must be selected in consultation with the English departmental counselor.

**General 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 142A and 142B; 141A, 141B, or 143; at least one course from the 150 series; and four electives selected from courses 140A through M197 (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 Major**

For this major, you must satisfy all requirements listed under "Preparation for the Major," including the foreign language requirement. The major consists of English 142A and 142B and a minimum of ten additional upper division English courses: three creative writing courses from the 133A through 135C series, taken in a single genre (poetry, short story, or drama), three literature courses paralleling the creative writing specialization (the following pairings are recommended: 100A and 101B with 133A-133B-133C; 100C and 101C with 134A-134B-134C; 100B and 101D with 135A-135B-135C), and four electives selected from courses 140A through M197. If you are planning to choose this major, you are encouraged to take course 20; for further details, contact the departmental counselor.

**Major for Foreign Students**

The department offers a special major in English open to bona fide foreign students whose first language is other than English. For this major, 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 major itself: English as a Second Language 103J, 106J, 109J; two courses from English 100A through 199; 122; 142A, 142B; and four additional courses from those numbered 140A through 199. If you complete this major and wish to pursue graduate study, you should consult the departmental counselor about programs of study and requirements for admission.

**Teaching Credential Candidates**

If you wish to obtain a credential to teach English, you should declare your intention at the beginning of your junior year and seek the advice of the departmental counselor in planning a coherent program. The department requires English 120A or 120B or 120C, and 130 as part of, or in addition to, the major. You must also complete English 300 before you can be certified to begin student teaching. You are encouraged to select additional courses in language, children's literature, literature for adolescents, American literature, and literature for minorities as some of your electives. Note: *Students who enter the Graduate School of Education seeking a credential to teach English must, before beginning their required practice teaching assignment, be certified by the Department of English as prepared to teach this subject; the department will not certify any student who has not completed the courses specified above.* For additional information on courses leading to the teaching credential, consult the Graduate School of Education (201 Moore Hall) or the Department of English.

## Honors Program

**Admission:** The honors program is open to English 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 the second 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 the Fall Quarter of your senior year, you must take course 199HA. During the Winter and Spring Quarters, you will take courses 199HB and 199HC, in which you will write a thesis under the direction of a faculty member. The thesis will determine whether you receive high honors, honors, or no honors.

## Master of Arts Degree

### Admission

Ordinarily, students holding the B.A. are expected to meet these minimum requirements: an undergraduate major or program that provides preparation for advanced study of literature; a grade-point average of at least 3.2 in all English courses in the junior and senior years; and a score on the Graduate Record Examination of at least 600 on both the verbal section of the Aptitude Test and the Advanced Literature in English Test. Three letters of recommendation are also required. For a descriptive brochure, write to the Graduate Counselor, Department of English, UCLA, Los Angeles, CA 90024.

The master's program is not preliminary to the doctoral program; if you are seeking the Ph.D., you should apply directly for that program. In a few cases, students who have done exceptionally well in the M.A. program have successfully petitioned the graduate committee for permission to enter the doctoral program.

### Major Fields or Subdisciplines

The course requirements for the M.A. are highly flexible in order to permit a course of study that reflects your primary interests. Recommended electives for certain special fields of interest are suggested below.

(1) *Language:* English 120A through 122, 130, 190, 210, 211, 212, 213, 240, 241, 242, 272, M274, English as a Second Language M250K.

(2) *Creative Writing:* English 133A through 135C.

(3) *English for Minority Groups:* English 114, 122, 130, 190; ESL 109K; Education M102; Linguistics 100, 170; Sociology 124, 155.

## Foreign Language Requirement

You may fulfill the language requirement by demonstrating a reading knowledge of any foreign language. This requirement should be satisfied at the beginning of your first quarter of residence, but in any event no later than the mid-point of the quarter in which you complete all degree requirements. A score of 500 or above on one of the Educational Testing Service (ETS) examinations is considered proof of a reading knowledge. Tests in languages not covered by an ETS examination are arranged by the English Department or by other language departments on campus.

### Course Requirements

Nine letter-graded courses are required for the degree, five of which must be at the graduate level (200 or above). The nine courses must include one course in literary criticism (English 140A or 201) and three graduate courses in literary history (selected from English 220 through 228, M243A through 255 and, depending on specific content, 256 through 259), two of which must deal with periods before 1900 and two of which must be historically contiguous (for example, courses 224 and 225).

Four units of course 595 may be applied toward the total course requirement and the graduate course requirement. This course requires the completion of a substantial project, creative or scholarly.

### Teaching Experience

Teaching experience is not required for the degree, but if you are planning to enter community college teaching, you are advised to enroll in English 270A-270B, which provide supervised teaching experience at cooperating community colleges. Consult the instructor early in the Fall Quarter of the year in which you plan to take the courses.

### Comprehensive Examination Plan

After completing all requirements, you are given a comprehensive oral examination of no more than 90 minutes to test your comprehension of the major literary documents examined during graduate study and your ability to analyze a work of literature. You must write a paper ten pages in length on a subject set in consultation with your committee chair and distribute it to the committee at least one week in advance of the examination. During the first half of the examination, the committee discusses the paper. The remainder of the examination is devoted to the fields represented by the nine courses taken for the degree. Comprehensive examinations are offered during the Fall, Winter, and Spring Quarters of each academic year. If you fail the examination, you may repeat it once only.

## Ph.D. Degree

### Admission

Ordinarily, applicants holding the B.A. and seeking direct admission to the Ph.D. program are expected to meet these minimum requirements: an undergraduate major or program that provides preparation for advanced study of literature; a grade-point average of at least 3.4 in all English courses in the junior and senior years; and a score on the Graduate Record Examination above 600 on both the verbal section of the Aptitude Test and the Advanced Literature in English Test. Applicants holding the M.A. will be expected to have a grade-point average of at least 3.5 in their graduate studies and correspondingly higher scores on the Advanced Test. Three letters of recommendation are also required. For a descriptive brochure, write to the Graduate Counselor, Department of English, UCLA, Los Angeles, CA 90024.

If you are limited on admission to the M.A. program, you may, on completion of that course of study, petition to enter the doctoral program provided you have maintained a grade-point average of at least 3.5 in your graduate studies and are recommended by your examining committee. Such petitions are not automatically approved and should be accompanied by appropriate supporting materials.

### Foreign Language Requirement

You are normally expected to have a reading knowledge of two foreign languages, or to demonstrate a superior proficiency in a single language. The departmentally-approved languages are French, German, Italian, Spanish, Latin, and Greek, but other languages may be substituted by petition on the basis of a special research interest.

Reading knowledge of a language may be demonstrated in one of two ways: (1) by scoring 600 or higher on an Educational Testing Service (ETS) examination or (2) by passing a special reading examination offered by certain UCLA foreign language departments. The first language requirement must be satisfied before the first qualifying examination and the second before the second qualifying examination.

### Teaching Experience

Although teaching experience is not required, most students in the doctoral program have the opportunity to serve as teaching assistants after passing English 495A and being in the program for at least one year. Teaching assistantships are awarded on the basis of merit.

### Course Requirements and Qualifying Examinations

The doctoral program is divided into three stages, the first two of which culminate in the first and second qualifying examinations.

(1) **First Stage:** In the first stage, which leads to the master's degree, you must take a minimum of nine letter-graded English courses from the 200 series. Course 201 is required. (If you enter with an M.A. in English, you are presumed to have fulfilled the nine-course requirement but must take course 201 or the equivalent.)

*First Qualifying Examination:* After passing the required courses and satisfying at least one of the foreign language requirements, you take the first qualifying examination consisting of four written examinations of four hours each. The four parts are graded high pass, pass, low pass, or fail; in order to pass the examination as a whole, you must have maintained a passing grade on each of the parts. (A grade of low pass on all four parts is considered a failure; the graduate faculty decides whether a repeat examination will be permitted.) Further details on breadth, philology, and bibliography requirements are available from the department.

(2) **Second Stage:** In this stage of the program, you must take five courses from the 200 series in English, including a minimum of three seminars. You are encouraged to take as many seminars as possible (any graduate seminar may be repeated for credit), as well as suitable courses in other departments. When sufficiently well prepared and after satisfying the second language requirement, you take the second qualifying examination.

*Second Qualifying Examination:* The University Oral Qualifying Examination, at least two hours in length, consists of two parts. The first covers a 100-year period or longer in English or American literature. The second part deals with your prospectus, a substantially researched paper which has been approved by the committee chair and distributed to the committee at least one week before the scheduled examination. The committee must certify both that you are competent in the historical field and that the prospectus has been approved. If you fail one or both parts of the examination, you may, at the discretion of the committee, repeat it only once.

(3) **Third Stage:** Once you have passed the second qualifying examination, you may advance to candidacy and, on application, receive the Candidate in Philosophy (C.Phil.) degree. You may then proceed with the writing of the dissertation.

### Final Oral Examination

A final oral defense of the dissertation is optional with the doctoral committee but is usually not required.

## Lower Division Courses

**A. Basic Review of English Usage (No credit).** Prerequisite: placement into English A determined by performance on the Subject A Placement Test. English A displaces four units on the student's Study List but yields no credit toward a degree. A preliminary course in academic writing, offering workshop exercises in reading, writing, and revision. Students learn grammar and mechanics primarily through practice and imitation. Completion of this course with a grade of C or better or demonstration of minimum competence on the Subject A Placement Test is prerequisite to English 1A.

**1A. Fundamentals of Exposition (No credit\*).** (Formerly numbered 1.) Prerequisite: English A or qualifying score on Subject A Placement Test. English 1A displaces four units on the student's Study List but yields no credit toward a degree. Designed to develop the proficiency in expository writing required for successful University work. Lectures, readings, class discussions, and assignments in writing and revision. Completion of this course with a grade of C or better meets the Subject A requirement. [\*The two units of baccalaureate credit formerly given for English 1 have been withdrawn effective Fall Quarter 1984. Students should check with the Freshman Writing Program.]

**3. English Composition, Rhetoric, and Language.** Lecture, three hours. Prerequisite: satisfaction of Subject A requirement by examination or by completion of course 1A with a grade of C or better. The course stresses rhetorical techniques and skillful argument. Students analyze varieties of academic prose and write a minimum of five formal papers (three to five pages each). Completion of this course with a grade of C or better satisfies the English Composition requirement.

**4. Critical Reading and Writing.** Prerequisites: satisfaction of Subject A requirement and course 3 or equivalent. An 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).

**10A. English Literature to 1660.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4. A 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) or equivalent.

Mr. Allen, Mr. Condren, Mr. Rodes

**10B. English Literature, 1660-1832.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A. A study of selected works of the period, including writings by Dryden, Pope, Swift, Wordsworth, and Keats. Minimum of three papers (three to five pages) or equivalent.

Mr. Batten, Mr. Burwick, Mr. Novak

**10C. English Literature, 1832 to the Present.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B. A study of selected works of the period, including writings by Tennyson, Arnold, Browning, Yeats, Joyce, and Eliot. Minimum of three papers (three to five pages) or equivalent.

Mr. Berst, Mr. Kolb, Mr. Solomon

**20. Introduction to Creative Writing.** Prerequisites: satisfaction of Subject A requirement, course 3 or equivalent, and submission of creative or expository writing samples to a screening committee. Designed to introduce the fundamentals of creative writing. Each class focuses either on poetry, fiction, or drama, depending on the wishes of the instructor(s) during any given quarter. Readings from assigned texts and weekly writing assignments are required.

**30. Intermediate Exposition.** Prerequisite: satisfaction of Subject A and English Composition requirements. An intermediate course in academic writing which follows course 3 and teaches students how to write longer papers built on more complex, demanding texts. Readings include at least two books dealing with issues central to the humanities, social sciences, or life sciences. Writing assignments include a research project appropriate to students' majors.

**70. Major British Authors Before 1800.** Prerequisite: satisfaction of Subject A requirement. Not open for credit to English majors or students with credit for course 10A or 10B. A study of selected masterpieces of English literature before 1800, including the works of such writers as Chaucer, Shakespeare, Donne, Milton, Swift, Pope, Johnson, and Fielding.

Mr. Rousseau

**75. Major British Authors, 1800 to the Present.** Prerequisite: satisfaction of Subject A requirement. Not open for credit to English majors or students with credit for course 10B or 10C. A study of selected masterpieces of English literature, 1800 to the present, including the works of such writers as Wordsworth, Coleridge, Keats, Tennyson, Dickens, Browning, Yeats, Joyce, and Eliot.

Mr. Berst, Mr. Hutter, Mr. Kolb

**80. Major American Authors.** Prerequisite: satisfaction of Subject A requirement. Not open for credit to English majors or students with credit for any courses in the 170 series. An introduction to the chief American men of letters, with emphasis on the poetry, nonnarrative prose, and short fiction of such writers as Poe, Emerson, Whitman, Twain, Frost, and Hemingway.

Mr. Rubin-Dorsky, Mr. Wortham

**85. The American Novel.** Prerequisite: satisfaction of Subject A requirement. Not open for credit to English majors or students with credit for course 171, 172, or 174. The development, with emphasis on form, of the American novel from its beginning to the present day. Included are works of such novelists as Hawthorne, James, Fitzgerald, and Faulkner.

Mr. Paredes, Mr. Rubin-Dorsky

**90. Shakespeare.** Prerequisite: satisfaction of Subject A requirement. Not open for credit to English majors or students with credit for course 142A or 142B. A survey of Shakespeare's plays, including comedies, tragedies, and histories, selected to represent Shakespeare's breadth, artistic progress, and total dramatic achievement.

Mr. Guffey, Mr. Rodes, Ms. Rowe

## Upper Division Courses

**100A. Introduction to Poetry.** Prerequisite: satisfaction of Subject A requirement. Recommended for teaching credential candidates. A study of critical issues (metrics, diction, figurative language, symbolism, irony and ambiguity, form and structure) and aesthetic issues, including evaluative criteria, followed by the close critical analysis of a selection of representative poems. Mr. Grose, Mr. Sheats, Mr. Thorslev

**100B. Introduction to Drama.** Prerequisite: satisfaction of Subject A requirement. Examination of representative plays; readings may range from Greek to modern drama. Emphasis on critical approaches to the dramatic text; study of issues such as plot construction, characterization, special uses of language in drama, methods of evaluation. Mr. Berst

**100C. Introduction to Fiction.** Prerequisite: satisfaction of Subject A requirement. An 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. Mr. Anderson

**100D. Introduction to Special Topics and Genres.** Prerequisite: satisfaction of Subject A requirement. A 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. Mr. Tennyson, Mr. Thorslev

**100W. Intensive Writing (2 units).** Prerequisite: course 3. Student must be concurrently enrolled in a course offered in conjunction with English 100W (refer to the *Schedule of Classes* for courses so designated). Designed to teach analytic paper writing, with emphasis on revision techniques. Material for writing assignments comes from adjunct course, and assignments reflect and develop writing skills needed in that course. May be repeated for credit by consent of instructor.

**101A. Recent British Literature.** Prerequisite: satisfaction of Subject A requirement. Recent trends and developments in British fiction and poetry since World War II. Mr. Bedient, Mr. Kolb, Mr. Yenser

**101B. Recent American Poetry.** Prerequisite: satisfaction of Subject A requirement. Recent trends and developments in American poetry since World War II. Mr. Gullans, Mr. Yenser

**101C. Recent American Fiction.** Prerequisite: satisfaction of Subject A requirement. Recent trends and developments in American fiction since World War II. Mr. Goldberg, Mr. Wortham

**101D. Recent British and American Drama.** Prerequisite: satisfaction of Subject A requirement. Recent trends and developments in British and American drama since World War II. Mr. Berst, Mr. Goodwin

**102. The Short Story in England and America.** Prerequisite: satisfaction of Subject A requirement. A historical survey of the short story as a genre, from the 19th century to the present. Mr. Anderson

**103. Jewish American Fiction.** Prerequisite: satisfaction of Subject A requirement. The study of the fiction of Jewish writers in America, such as Bellow, Malamud, and Roth, focusing on the encounter of Jewish ethical ideals and social values with the contemporary environment. Mr. Novak

**M104. Afro-American Literature.** (Formerly numbered 104.) (Same as Afro-American Studies M104.) Prerequisite: satisfaction of Subject A requirement. An introductory survey of the Afro-American literary tradition from the 18th century to the present, including oral and written forms (folktales, songs, sermons; prose, poetry, drama). A study of major trends in Afro-American thought as revealed in the literature. Mr. Yarbrough

**M105. The Chicano Experience in Literature.** (Same as Chicano Studies M105.) Prerequisite: satisfaction of Subject A requirement. The study of literature in English by and about Chicanos. The course surveys the depiction of the Chicano experience in American literature generally and focuses on the development of Chicano literature itself, its cultural backgrounds, and distinctive uses of language. Mr. Paredes

**106. Native American Literary Studies.** Prerequisite: satisfaction of Subject A requirement. The study of Native American oral cultures through translated documents (song-poems, life-stories, myths, tales, dream visions, speeches) and/or the images in writing about Native Americans (poetry, fiction, history, anthropology, sociology). Mr. Lincoln

**M107. Women in Literature.** (Same as Women's Studies M107.) Prerequisite: satisfaction of Subject A requirement. A survey of literary works by and about women, the course examines the delineation of women in English and American literature, studies in historical and contemporary themes, and the evolution of forms and techniques in poetry, fiction, and biography. Ms. Brienza, Ms. Rowe, Ms. Yeazell

**108A-108B. The English Bible as Literature.** Prerequisite: satisfaction of Subject A requirement. The principal literary monuments of the Old and New Testaments in the King James Version. **108A** deals with the Old Testament, **108B** with the New Testament. Mr. Dearing, Mr. Post

**108C. The English Bible as Literature: Special Topics.** Prerequisite: satisfaction of Subject A requirement. A study of the English Bible, with attention to particular literary themes, motifs, and genres. The course may also attempt to trace the influence of the Bible on discrete periods or individual authors in English literature. May be repeated for credit. Mr. Dearing, Mr. Kinsman

**109. Interdisciplinary Approaches to Literature.** Prerequisite: satisfaction of Subject A requirement. The study of British or American literature in relation to other disciplines such as history, politics, philosophy, psychology. May be repeated for credit. Mr. Burwick, Mr. Maniquis

**110. Studies in Individual Authors.** Prerequisite: satisfaction of Subject A requirement. The specialized study of the work of a single poet, dramatist, prose writer, or novelist. May be repeated for credit.

**M111A. The Literature of Myth and Oral Tradition.** (Same as Folklore M111.) Prerequisite: satisfaction of Subject A requirement. A study of myth, dramatic origins, oral epic, folktale, and ballad, emphasizing Indo-European and Semitic examples. Mr. Nagy

**M111B. Anglo-American Folk Song.** (Same as Folklore CM106.) Prerequisites: satisfaction of Subject A requirement, junior standing. A survey of Anglo-American balladry and folk song, with attention to historical development, ethnic background, and poetic and musical values. Mr. Wilgus

**M111C. British Folklore and Mythology.** (Same as Folklore M121.) Prerequisites: satisfaction of Subject A requirement, junior standing. A survey of the folklore of the peoples of Britain, with attention to their history, function, and regional differences. Mr. Nagy, Mr. Porter

**M111D. Celtic Mythology.** (Same as Folklore M122.) Prerequisite: Folklore 101 or consent of instructor. A survey of the early materials, chiefly literary, for the study of the mythic traditions of the Celtic peoples, ranging from ancient Gaul to medieval Ireland and Wales. Mr. Ford

**M111E. Survey of Medieval Celtic Literature.** (Same as Folklore M112.) Prerequisite: satisfaction of Subject A requirement. Knowledge of Irish or Welsh is not required. A general course dealing with Celtic literature from the earliest times to the 14th century. Mr. Ford

**M111F. Celtic Folklore.** (Same as Folklore M127.) Prerequisite: Folklore 101 or consent of instructor. The folkloric traditions of modern Ireland, Scotland, and other Celtic countries, with attention to current techniques of folkloristic research. Mr. Nagy

**M111G. Oral Traditions in Africa.** (Same as Folklore M155.) Prerequisite: upper division standing. A survey of African folk traditions: folktale, epic, heroic poetry, and folk song.

**112. Children's Literature.** Prerequisite: satisfaction of Subject A requirement. A study of the historical backgrounds and development of types of children's literature, folklore and oral tradition, levels of interest, criticism and evaluation, illustration and bibliography. Mr. Cushman

**113. Literature for Adolescents and Young Adults.** Prerequisite: satisfaction of Subject A requirement. The course analyzes and evaluates the literature intended mainly for students in junior and senior high schools. It also reviews mature books that are popularly suggested for this age group, and studies the interests and reading habits of young adults. Mr. Cushman

**114. World Literatures in English.** Prerequisites: satisfaction of Subject A requirement, consent of instructor. A survey of contemporary literature from English-speaking regions of the world, reviewing the major genres from several countries and making cross-comparisons with the literatures. Generalizations concerning the nature of the English used by such writers are examined. May be repeated for credit. Mr. Kinsman, Mr. Povey

**115A. American Popular Literature.** (Formerly numbered 115.) Prerequisite: satisfaction of Subject A requirement. A study of the main currents of popular and cultural taste as reflected in such genres as dime novels, detective fiction, and Western stories. Mr. Nagy, Mr. Paredes

**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. An examination of the social functions of literature. Mr. Nagy

**116. Science Fiction.** Prerequisite: satisfaction of Subject A requirement. A study of science fiction and speculative literatures. Mr. Guffey

**117. Detective Fiction.** Prerequisite: satisfaction of Subject A requirement. A study of British and American detective fiction and the literature of detection. Mr. Hutter

**118. Film and Literature.** Prerequisite: satisfaction of Subject A requirement. A study of the interdisciplinary relationships between film and literature, including theme and structure, and focusing on cinematic adaptations of literary works. Mr. Goodwin

**120A. Language Study for Teachers: Elementary School.** Prerequisite: satisfaction of Subject A requirement. A 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 the teaching of reading, writing, spelling, and literature.

**120B. Language Study for Teachers of English: Secondary and Postsecondary.** Prerequisite: satisfaction of Subject A requirement. A rapid review of English grammar and an introduction to basic concepts in sociolinguistics, dialectology, and stylistics applied to the analysis and evaluation of writing samples from students in junior and senior high school and junior college.

**120C. Language Study for Teachers of Subjects Other Than English: Secondary and Postsecondary.** Prerequisite: satisfaction of Subject A requirement. Designed to introduce teachers of subjects other than English to basic concepts in language acquisition, dialectology, sociolinguistics, and composition.

**121. The History of the English Language.** Prerequisite: satisfaction of Subject A requirement. A study directed toward English majors of the main features in the grammatical, lexical, and phonetic condition of the English language from Indo-European up to the present time. Mr. Calder, Mr. Condren

**122. Introduction to the Structure of Present-Day English.** Prerequisite: satisfaction of Subject A requirement. An introduction to the techniques of linguistic description as applied to the pronunciation, grammar, and vocabulary of modern English.

**130. Composition for Teachers.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4. Preparation for future teachers of English composition in the writing and criticism of the kinds of prose discourse usually taught in primary and secondary schools and in junior college.

**131. Advanced Exposition.** Prerequisites: satisfaction of Subject A and English Composition requirements, consent of instructor. An advanced writing course for students who wish to improve their expository skills and develop their style. Special sections offered periodically include honors, business, journalism, law, and technical writing. May be taken P/NP by English majors, though English majors who wish to use the course to satisfy departmental prerequisites must take it for a letter grade.

**133A-133B-133C. Creative Writing: Poetry.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, and consent of instructor (following submission of writing samples). Weekly exercises in the writing of poetry, with practice in the standard forms and metres and the study of techniques. Classroom discussion based on student use. Only one course in the sequence may be repeated for credit.

Mr. Gullans, Mr. Kessler, Mr. Yenser

**134A-134B-134C. Creative Writing: Short Story.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, and consent of instructor (following submission of writing samples). Three stories of average length are completed during each quarter. Some of these may, with the instructor's consent and the student's wish, be substantial revisions of the other stories presented. Classroom discussion is based on stories presented. Only one course in the sequence may be repeated for credit.

Mr. Goldberg, Mr. Kessler, Mr. Moore

**135A-135B-135C. Creative Writing: Drama.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, and consent of instructor (following submission of writing samples). An exploration of the 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 the sequence may be repeated for credit.

Mr. Kessler, Mr. Rodes

**136A-136B-136C. Practical Writing and Editing.** Lecture, three hours. Prerequisites: satisfaction of Subject A requirement, consent of instructor. A 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 is 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.

**140A. Criticism: History and Theory.** (Formerly numbered 140.) Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. A study of some of the major historical documents and theoretical statements in the 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. The course focuses on the major critical positions posed and developed by these writers, the basis of their theoretical positions, and the practical consequences of those positions. Some portion of the course may be devoted to recent trends in criticism.

Mr. Kolb, Mr. Solomon

**140B. Criticism: Special Topics.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. A study of limited periods and specialized issues and approaches in the history of literary criticism, including moral, biographical, sociological, psychological, formal, structural, and deconstructionist. The area of concentration is determined by the instructor and listed in the *Schedule of Classes*. Some study of literary texts, to illuminate the value and practical application of the approach, may be required.

Mr. Riddel, Mr. Solomon

**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 the department's Chaucer requirement.

Mr. Calder, Mr. Condren, Ms. Ridley

**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 the department's Chaucer requirement.

Mr. Condren, Mr. Kelly, Ms. Ridley

**142A. Shakespeare: The Poems and Early Plays.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. An intensive study of selected poems and representative comedies, histories, and tragedies through *Hamlet*.

Mr. Allen, Mr. Dent, Mr. Post

**142B. Shakespeare: The Later Plays.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C, 142A. An intensive study of representative problem plays, major tragedies, Roman plays, and romances.

Mr. Braunmuller, Mr. Foakes, Mr. Kipling

**142C. Shakespeare: Selected Topics.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. Designed for students interested in further study of Shakespeare. Limits of investigation are set by the individual instructors.

Mr. Allen, Mr. Braunmuller, Mr. Rodes

**143. Milton.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. A study of the major works of Milton, with emphasis on *Paradise Lost*.

Mr. Grose, Mr. Guffey, Ms. Rowe

**150. Later Medieval Literature.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. Reading and historical explication of the major writers of the 14th and 15th centuries (e.g., the Gawain-poet, Langland, Gower, Malory, miracle and morality plays, prose, lyrics, and the minor poems of Chaucer). The more difficult texts are read in modernized form.

Mr. Condren, Mr. Kinsman, Mr. Kipling

**151. Elizabethan Literature.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. A study of English literature of the 16th century, with special emphasis on the development and interrelationships of poetry, prose, fiction, and literary theory and criticism during the reign of Elizabeth I.

Mr. Kipling, Mr. Weiner

**152. The Drama to 1642.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. A study of the English drama, excluding Shakespeare, from its beginning to the closing of the theaters, with special emphasis on plays of the Elizabethan and Jacobean periods.

Mr. Braunmuller, Mr. Dent

**153. Literature of the Early 17th Century (1600-1660).** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. A study of the major works as literary documents and as products of 17th-century thought. The work of Milton is excluded.

Mr. Grose, Mr. Gullans, Mr. Post

**154. Literature of the Restoration and Earlier 18th Century (1660-1730).** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. A study of the major works as literary documents and as products of the Restoration and earlier 18th-century thought.

Mr. Dearing, Mr. Roper, Mr. Rousseau

**155. Literature of the Later 18th Century (1730-1798).** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. A study of major works as literary documents and as products of later 18th-century thought.

Mr. Dearing, Mr. Novak, Mr. Roper

**156. The Drama, 1660-1842.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. A survey of the English drama from the Restoration to the Licensing Act.

Mr. Batten, Mr. Novak, Mr. Rodes

**157. The Novel to 1832.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. A survey of the works of the major English novelists from Defoe through Scott.

Mr. Batten, Mr. Lehan, Mr. Rousseau

**160. Earlier Romantic Poetry and Prose.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. An intensive study of the poetry and prose of Blake, Wordsworth, and Coleridge, with collateral readings from such authors as Godwin, Burke, Paine, Burns, Southey, Lamb, DeQuincey, and Scott.

Mr. Maniquis, Ms. Packer, Mr. Sheats

**161. Later Romantic Poetry and Prose.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. An intensive study of the poetry and prose of Keats, Shelley, and Byron, with collateral readings from such authors as Hazlitt, Hunt, Landor, Clare, Moore, and Peacock.

Mr. Burwick, Mr. Maniquis, Mr. Thorslev

**162. Earlier Victorian Poetry and Prose.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. A study of the poetry and prose of the Victorian age from the passage of the first Reform Bill through the high Victorian period, including such authors as Tennyson, Browning, Arnold, Carlyle, Mill, and Newman.

Mr. Freeman, Mr. Kolb, Mr. Tennyson

**163. Later Victorian Poetry and Prose.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. A study of the 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.

Mr. Freeman, Mr. Kolb, Mr. Tennyson

**164. The Novel, 1832-1900.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. A survey of the major English novelists from Dickens through Hardy.

Mr. Anderson, Mr. Hutter, Ms. Yeazell

**165. 20th-Century British Poetry and Prose.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. A study of the dominant trends of 20th-century poetry and prose, with emphasis on experimental work in short fiction, poetry, and the contemporary critical sensibility.

Mr. Bedient, Mr. Kolb, Mr. Lincoln

**166. The Novel, 1900 to the Present.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. A survey of the major English novelists from Conrad to the present.

Ms. Brienza, Mr. Lehan, Mr. Lincoln

**167. The Drama, 1842 to the Present.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C (for theater arts majors the 10A, 10B, 10C prerequisites are waived). A survey of British and American drama, with its principal continental influences.

Mr. Berst, Mr. Braunmuller, Mr. Goodwin

**170. American Literature to 1800.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. A historical survey of American literature through the Colonial and early national periods.



**171. American Literature, 1801-1865.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. A historical survey of American literature, including fiction, from the beginning of the 19th century to the end of the Civil War.

Ms. Packer, Mr. Rubin-Dorsky, Mr. Wortham

**172. American Literature, 1866-1912.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. A historical survey of American literature from the end of the Civil War to the founding of *Poetry* magazine.

Ms. Banta, Mr. Rubin-Dorsky, Mr. Wortham

**173. 20th-Century American Poetry.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. The development of American poetry since 1912, including the works of Frost, Eliot, Pound, and Stevens.

Mr. Bedient, Mr. Riddel, Mr. Yenser

**174. 20th-Century American Fiction.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. The development of the American novel and short story since 1912, including the works of Hemingway, Fitzgerald, and Faulkner.

Mr. Goodwin, Mr. Paredes, Mr. Yarborough

**175. Perspectives in the Study of American Culture.** Prerequisites: satisfaction of Subject A requirement, courses 3, 4, 10A, 10B, 10C. An interdisciplinary study of American literature in its relationships to other disciplines, including art, architecture, film, history, music, politics, and various social sciences. The course concentrates on the application of literary methodology to a historical survey of American culture.

Mr. Goodwin, Mr. Paredes

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. For the author, period, genre, or subject to be studied, see the *Schedule of Classes* for any given quarter. Enrollment is handled through the department at the time of preenrollment in the quarter preceding that in which the course is offered. For further details, see the departmental counselor. The 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. The intensive study of some aspect of the relationship between literature and social, economic, or political history. May be repeated for credit.

Mr. Goodwin

**M197. Topics in Afro-American Literature.** (Same as Afro-American Studies M197.) A variable specialized studies course in Afro-American literature. Topics include the Harlem Renaissance; Afro-American Literature in the Nadir, 1890-1914; Contemporary Afro-American Fiction. May be repeated for credit.

Mr. Yarborough

**197H. Honors Seminar for Freshmen and Sophomores.** Seminar, three hours. Prerequisites: courses 3, 4. Limited to 15 students. Recommended for lower division students who anticipate entering the honors program in English during their junior year. Content varies; see departmental counselor for information.

Mr. Batten

**199. Special Studies in English (2 to 4 units).** Prerequisite: consent of instructor. An intensive directed research project. To enroll or obtain information, see departmental counselor.

**199HA. Honors Seminar.** Prerequisite: course 140A. An introduction to research techniques and a study of various approaches and applications of critical methodology as it relates to the interpretation and evaluation of texts.

Mr. Solomon (F)

**199HB-199HC. Honors Tutorial.** (Formerly numbered 199H.) Prerequisites: course 199HA and consent of instructor. A tutorial in which students write a thesis under the direction of a faculty member. In Progress grading.

(W, Sp)

## Graduate Courses

**200. Approaches to Literary Research.** The bibliographical tools of English and American literary scholarship; an introduction to descriptive bibliography and basic methods of research.

Mr. Batten, Mr. Kipling

**201. The History of Literary Criticism.** The study of the major documents in Western literary theory from Plato to the present.

Mr. Kolb, Mr. Solomon

**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.

Mr. Dearing

**203. Computer and Literary Research.** Practice in writing and using computer programs for the analysis of literary style, content, and authorship. Prior knowledge in this area is not necessary.

Mr. Dearing

**M205. Perspectives in American Folklore Research.** (Same as Folklore M205.) Prerequisites: Folklore 101 and one other upper division folklore course. An examination of American folklore studies compared and contrasted with investigations in other countries, with emphasis on the principal conceptual schemes and research orientations employed in the study of folklore in American society.

Mr. Georges, Mr. Jones, Mr. Wilgus

**210. History of the English Language.** A detailed study of the history, characteristics, and changing forms of the language from its origin until about 1900.

Mr. Condren

**211. Old English.** Study of Old English grammar, lexicon, phonology, and pronunciation to enable the student 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 quarter.

Mr. Calder, Mr. Condren

**212. Middle English.** Prerequisite: course 211. Detailed study of the linguistic aspects of Middle English and of representative examples of the better prose and poetry.

Mr. Condren, Ms. Ridley

**213. Modern English.** Detailed study of the language's history and characteristics since 1500. Phonological, grammatical, and lexicographical developments are studied in relation to accompanying intellectual, political, and social changes.

**M215. Advanced Seminar in the Structure of Present-Day English.** (Formerly numbered 215.) (Same as English as a Second Language M250K.) Prerequisite: English as a Second Language 122K or consent of instructor. Investigation in depth of selected linguistic features of oral and written texts that go beyond the sentence level and thus signal cohesion. Structures are studied to determine their function in a variety of English texts representing several discourse types.

Ms. Celce-Murcia

**216A-216B. Old Irish.** Prerequisite: consent of instructor. Studies in grammar. Readings in the glosses and other texts. Comparative considerations.

Mr. Ford

**217A-217B. Medieval Welsh.** Prerequisite: consent of instructor. Studies in grammar. Readings in the Mabinogi and other texts. Comparative considerations.

Mr. Ford

**218. Celtic Linguistics.** Prerequisite: consent of instructor. A survey of salient features of the Celtic linguistic stock in its Gaelic and British branches, with reference to the position of Celtic within Indo-European languages.

Mr. Ford

The following courses stress wide reading in major works and their cultural background. Students with adequate undergraduate preparation in one of the following periods may proceed directly to a seminar.

**220. Readings in Medieval Literature.**

Mr. Calder, Mr. Kelly, Ms. Ridley

**221. Readings in Renaissance Literature.**

Mr. Allen, Mr. Kinsman, Mr. Lanham

**222. Readings in Earlier 17th-Century Literature.**

Mr. Guffey, Mr. Gullans, Mr. Sellin

**223. Readings in Restoration and 18th-Century Literature.**

Mr. Dearing, Mr. Novak, Mr. Rousseau

**224. Readings in Romantic Literature.**

Mr. Burwick, Mr. Maniquis, Mr. Thorslev

**225. Readings in Victorian Literature.**

Mr. Freeman, Mr. Tennyson, Mr. Welsh

**226A. Readings in Earlier American Literature.**

Mr. Rubin-Dorsky, Mr. Wortham

**226B. Readings in 19th-Century American Literature.**

Ms. Packer, Mr. Wortham

**227. Readings in 20th-Century American Literature.**

Mr. Lehan, Mr. Paredes, Mr. Riddel

**228. Readings in 20th-Century British Literature.**

Mr. Bedient, Mr. Kessler

**229A. Readings in the Novel.**

**229B. Readings in the Drama.**

Seminar courses (230 through 260) are open to all graduate students with adequate preparation and may be repeated for credit. Enrollment is by consent of instructor, and continuing students must sign up for seminars before the end of the preceding quarter. A prospectus announcing topics for all seminars will be available in the department office in June for the ensuing academic year.

**230. Workshop in Creative Writing.** Prerequisite: consent of instructor, following submission of writing samples in the specified genre (poetry, fiction, or drama). May be repeated but may not satisfy more than one of the nine courses required for the first qualifying examination nor any of the five courses required for the second qualifying examination.

Mr. Yenser

**M235. African Myth and Mythology.** (Same as Folklore M235.) Prerequisite: graduate standing. The seminar examines the methods of analyzing and appreciating African myths and mythological systems.

**239. Explication (2 units).** Lecture, one hour; discussion, one hour. Recommended for first-stage Ph.D. candidates. Seminar to provide training in practical criticism. May be repeated for credit. S/U grading.

**240. Studies in the History of the English Language.** Individual seminars deal with any single historical period from the Old English period to the present or the development of a particular linguistic characteristic (phonology, syntax, semantics, dialectology) through various periods.

**241. Studies in the Structure of the English Language.** Prerequisite: consent of instructor. Topics in various aspects of the structure of modern English, especially syntax and semantics.

**242. Language and Literature.** The application of linguistics to literary analysis. Individual seminars deal with a historical period (medieval and Renaissance, neoclassical, or 19th century and modern), specific authors, or the contributions of specific groups of linguists to literary analysis.

Ms. Brienza, Mr. Grose, Mr. Lanham

**M243A. The Ballad.** (Same as Folklore M243A.) Prerequisite: consent of instructor. A study of the English and Scottish popular ballads and their American derivatives, with some attention to European analogues.

Mr. Wilgus

**M243B. Problems in Ballad Scholarship.** (Same as Folklore M243B.) Prerequisite: course M243A or consent of instructor. Intensive investigation of a problem or problems in the study of the popular ballad.

Mr. Wilgus

**244. Old and Medieval English Literature.** Studies in the poetry and prose of Old and medieval English literature; limits of investigation to be set by the individual instructor.

Mr. Calder, Mr. Kelly, Ms. Ridley

**245. Chaucer.** Mr. Condren, Mr. Kelly, Ms. Ridley

**246. Renaissance Literature.** Studies in the poetry and prose of Renaissance English literature, exclusive of Shakespeare; limits of investigation to be set by the individual instructor.

Mr. Allen, Mr. Dent, Mr. Kinsman

**247. Shakespeare.**

Mr. Allen, Mr. Dent, Mr. Foakes

**248. Earlier 17th-Century Literature.** Studies in the poetry and prose of 17th-century English literature up to the Restoration; limits of investigation to be set by the individual instructor.

Mr. Guffey, Mr. Gullans, Mr. Sellin

**249. Milton.** Studies in the poetry and prose of John Milton; particular emphases to be set by the individual instructor.

Mr. Grose, Mr. Post, Mr. Sellin

**250. Restoration and 18th-Century Literature.** Studies in English poetry and prose, 1660 to 1800; limits of investigation to be set by the individual instructor.

Mr. Novak, Mr. Roper, Mr. Rousseau

**251. The Romantic Writers.**

Mr. Burwick, Mr. Sheats, Mr. Thorslev

**252. Victorian Literature.** Studies in English poetry and prose of the Victorian period; limits of investigation to be set by the individual instructor.

Mr. Freeman, Mr. Kolb, Mr. Tennyson

**253. Contemporary British Literature.**

Mr. Bedient, Mr. Kessler, Mr. Yenser

**254. American Literature to 1900.** Studies in Colonial and 19th-century American literature; limits of investigation to be set by the individual instructor.

Ms. Banta, Mr. Bedient, Ms. Packer

**255. Contemporary American Literature.** Studies in contemporary American poetry and prose; limits of investigation to be set by the individual instructor.

Mr. Lehan, Mr. Riddel, Mr. Yenser

**256. Studies in the Drama.** Studies in the drama as a genre from its beginning to the present; limits of investigation to be set by the individual instructor.

Mr. Berst, Mr. Braummuller, Mr. Foakes

**257. Studies in Poetry.** Studies in various themes and forms of poetry from Old English to the present; limits of investigation to be set by the individual instructor.

Mr. Bedient, Mr. Kessler, Mr. Riddel

**258. Studies in the Novel.** Studies in the evolution of the genre from its beginning to the present; limits of investigation to be set by the individual instructor.

Mr. Lehan, Mr. Novak, Mr. Welsh

**259. Studies in Criticism.**

Mr. Guffey, Mr. Hutter, Mr. Riddel

**260. Studies in Literature and its Relationship to the Arts and Sciences.** Studies in the interrelationships of literature, the arts, and the sciences; limits of investigation to be set by the individual instructor.

Mr. Guffey, Mr. Lincoln, Mr. Rousseau

**M261. Studies in African Literature in English.** (Formerly numbered M271.) (Same as English as a Second Language M285K.) Prerequisite: consent of instructor. Special problems and trends of African literature in English.

Mr. Povey

**M262. Studies in Afro-American Literature.** (Formerly numbered M273.) (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 the aesthetic, cultural, and social backgrounds of Afro-American writing.

Mr. Yarbrough

**263. Celtic Literature.** Lecture, three hours. Prerequisite: knowledge of one of the ancient or modern Celtic languages. Studies in the poetry and prose of early and modern Celtic literatures, chiefly Irish and Welsh; limits of investigation to be set by the individual instructor.

Mr. Ford, Mr. Nagy

**270A-270B. English for the Two-Year College.** Prerequisite: course 120B or 275. The courses involve both discussion and practice of two-year college instruction in reading and composition. In Progress grading.

Mr. Freeman

**272. Current Issues in the Teaching of English.** Prerequisite: course 120B or Linguistics 100. The course focuses each time on one of a variety of topics of special current interest.

Mr. Lanham

**M274. The Teaching of English for Minority Groups.** (Formerly numbered 274.) (Same as English as a Second Language M224K.) Prerequisites: English as a Second Language 370K, Linguistics 100, or consent of instructor. The course includes in-depth description of the dialects of English and of other languages (such as Spanish) used by groups of students in American schools. The origins, variations within, and current status of language varieties such as Black English and Chicano Spanish are presented, relevant research reviewed, and educational implications discussed.

Mr. Bowen, Ms. McGroarty

**275. Stylistics and the Teaching of English.** An introduction to the study of language and style and its application to the teaching of English, including rhetoric, linguistics, and grammar. Teaching assistants must take this course during their first year of teaching.

Ms. Brienza

**300. The Teaching of English.** Required of candidates for the single subject credential in English. Study of theories of rhetoric, composition, reading, and literature as they apply to the secondary school English curriculum.

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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.

**495A-495B. Supervised Teacher Preparation (2 units each).** (Formerly numbered 495.) Discussion, one hour; laboratory, 30 minutes. **495A** is required of all applicants for a teaching assistantship in English and covers the practical concerns of designing a course, creating assignments, grading papers, and holding conferences for English 3 classes. **495B** must be taken concurrently with the first teaching assignment. It examines the specialized problems which occur in teaching English 3 and introduces students to techniques for teaching English 1 and ESL. In Progress and S/U grading.

Ms. Brienza

**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. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. S/U grading.

**595. Directed Individual Study for M.A. Candidates.** An independent study course for M.A. candidates which involves the completion of a substantial piece of work, creative or scholarly. Four units may be applied toward the five graduate courses required for the degree.

**596. Directed Individual Study.** For first-stage Ph.D. students preparing for first qualifying examination. May not be applied toward any course requirement for the degree. S/U grading.

**597. Preparation for Ph.D. Examination (4 or 8 units).** For second-stage Ph.D. students preparing for second qualifying examination. 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

**UCLA Writing Programs:**  
371 Kinsey Hall, 206-6815

**Freshman Writing Program:**  
271 Kinsey Hall, 206-1145

### Professor

Richard A. Lanham, Ph.D., *Executive Director,*  
*UCLA Writing Programs; Vice Chair, Composition*

### Adjunct Lecturers

Carol Hartzog, Ph.D., *Director, UCLA Writing Programs; Associate Vice Chair, Composition*  
Mike Rose, Ph.D., *Director, Freshman Writing Program*

### Visiting Lecturers

Dibakar Barua, Ph.D.  
Charles Berezin, Ph.D.  
Jennifer Bradley, Ph.D.  
Patricia Chittenden, M.A.  
Gary Colombo, C. Phil.  
Richard Creese, Ph.D.  
Robert Cullen, Ph.D.  
Patricia Donahue, Ph.D.  
Dianne Dugaw, Ph.D.  
Diane Durkin, Ph.D.  
Carol Edwards, Ph.D.  
Sandy Feinstein, M.A.  
Gretchen Flesher, Ph.D.  
George Gadda, C. Phil.  
Mary Georges, M.A.  
Lisa Gerrard, Ph.D.  
Patricia Gilmore-Jaffe, Ph.D.  
Cheryl Giuliano, M.A.  
Donna Gregory, Ph.D.  
Susan Griffin, Ph.D.  
Eugenia Gunner, C. Phil.  
Michael Gustin, M.A.  
Virginia Hornak, M.A.  
Patricia Hunt, Ph.D.  
Jeff Jeske, Ph.D.  
John Johnston, C. Phil.  
Malcolm Kiniry, Ph.D.  
Janette Lewis, Ph.D.

Bonnie Lisle, Ph.D.  
 Sonia Maasik, M.A.  
 John Mascaro, M.A.  
 Mary Morgan, Ph.D.  
 Faye Peitzman, Ph.D.  
 Susan Popkin, M.A.  
 Ellen Quandahl, Ph.D.  
 Barbara Rico, C.Phil.  
 Jeffrey Skoblow, M.A.  
 Ellen Strenski, Ph.D.  
 Patricia Taylor, Ph.D.  
 Cynthia Tuell, M.A.  
 James Williams, M.A.  
 Jennifer Wilson, Ph.D.  
 John Yockey, Ph.D.

## Scope and Objectives

Students need writing proficiency at every stage of their university careers. Although UCLA does not have a composition major, the UCLA Writing Programs and the Composition Section of the English Department offer a series of courses introducing the varieties of university discourse and providing basic to highly skilled instruction. Besides courses which satisfy the University's Subject A and English Composition requirements, the program offers adjunct courses (linked with courses in other departments) and advanced courses in exposition and in professional writing and editing.

## Subject A

Every student who does not satisfy the Subject A requirement by presenting transfer credit or acceptable test scores is required to take, in the quarter immediately following admission to the University, either English A or 1A. Placement in these courses is determined by performance on the Subject A Placement Test. For more information regarding Subject A, see "Undergraduate Degree Requirements" in Chapter 2.

## Composition Requirement

Each of the University's colleges and schools sets its 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 660 or better on the CEEB English Achievement Test are eligible to take the English Proficiency Examination. Outstanding performance on this examination fulfills the composition requirement. For further information, contact the Freshman Writing Program.

## Courses

See English departmental listings for English A, 1A, 3, 30, 100W, 120A, 120B, 120C, 130, 131, 136A-136B-136C, 300.

# English as a Second Language Section

3303 Rolfe Hall, 825-4631

## Professors

J. Donald Bowen, Ph.D.  
 Russell N. Campbell, Ph.D., *Vice Chair*  
 Evelyn R. Hatch, Ph.D.  
 Marianne Celce-Murcia, Ph.D.  
 John F. Povey, Ph.D.  
 Clifford H. Prator, Ph.D., *Emeritus*

## Associate Professors

Roger W. Andersen, Ph.D.  
 Earl J. Rand, Ph.D.  
 John H. Schumann, Ph.D.

## Assistant Professor

Mary E. McGroarty, Ph.D.

## Visiting Associate Professor

Grant Henning, Ph.D.

## Adjunct Lecturer

Donna Brinton, M.A.

## Scope and Objectives

The Teaching English as a Second Language (TESL) Program in the Department of English is 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 an 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, preparing lesson plans, and actual classroom teaching. There is, however, a 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 will be granted to applicants with strong research interests.

In addition, the ESL Section and the Linguistics Department offer an interdepartmental degree program leading to a Ph.D. in Applied Linguistics. For information, write to Applied Linguistics, 3308 Rolfe Hall, UCLA, Los Angeles, CA 90024. (Also see the section on "Applied Linguistics" earlier in this chapter.)

# Master of Arts in Teaching English as a Second Language

## Admission

Students normally apply for the M.A. in TESL 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, you 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. You are requested to submit the letters of recommendation directly to the Graduate Adviser, English as a Second Language Section, Department of English, 3308 Rolfe Hall, UCLA, Los Angeles, CA 90024. Since admission is limited to approximately 30 students per year, it is important that completed applications and supporting papers be submitted by February 15.

The admissions committee screens all applications, using the following criteria: grade-point average (must be 3.0 or better), Graduate Record Examination (GRE) scores, letters of recommendation, statement of purpose, and relevant professional experience. 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 and experience as a teacher; (3) knowledge of languages other than English; and (4) knowledge of other cultures.

## Foreign Language Requirement

Students whose native language is English generally use their Fall and Winter Quarter electives to acquire or perfect a knowledge of the native language or dialect of the pupils to whom they expect to teach English. This can be done by taking any one of four combinations of two courses: (1) two foreign language courses; (2) one foreign language course plus a corresponding course in the Linguistics 220 or 225 series; (3) one foreign language course plus English M274; (4) English 111K plus an unrestricted elective.

Those particularly interested in working with Mexican-American, Asian-American, or American Indian pupils will normally choose the third of these alternatives. When there is doubt as to which language will be most appropriate, a non-European language should be selected.

because of the greater broadening of linguistic horizons that such a selection offers. Foreign language courses that deal with linguistic structure should be selected whenever possible.

Nonnative speakers of English, depending on the results of the University's English as a Second Language Placement Examination (ESLPE), may be required to take a course to improve their practical command of English.

Exemption from the foreign language requirement may be granted if you can demonstrate a strong need to take other electives and have an unusually extensive background of previous foreign language study. For more information, contact the graduate adviser.

### First-Year Curriculum

The typical course of study for the first year of the M.A. program is as follows (descriptions of the English courses mentioned here may be found at the end of this section):

- Fall Quarter: Linguistics 100, English 370K, foreign language requirement or elective (course depends on language requirement plan)
- Winter Quarter: English 122K, 241K, foreign language requirement or elective (course depends on language requirement plan)
- Spring Quarter: English 106K or 107K or 109K, 380K, Linguistics 103 or English 103K

Exceptions to the above requirements will be made only after consultation with the graduate adviser.

Of the nine courses required the first year, at least seven must be in TESL, 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 Teaching Credential.

### Teaching Experience

One quarter of supervised teaching is required during the first year unless you have had extensive teaching experience. If this requirement is completed at UCLA in an adult education setting, you will be eligible for the California Adult Education Credential in ESL.

### 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 Linguistics 100, Linguistics 103 or English 103K, English 122K and 241K) and, in special cases, two of the electives (100 or 200 series only) are applied toward the University's nine-course minimum requirement for master's degrees. This leaves five courses, at least two of which must be at

the graduate level, to be completed in consultation with the graduate adviser during the second year.

Eight units of 500-series courses may be applied toward the M.A. degree. You must enroll in course 598K each quarter you are registered; however, only four units may be applied toward the degree (to be taken either in Spring Quarter of your first year or Fall Quarter of the second year).

English 400K is a seminar in which TESL 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.

The electives taken during the second year should be selected, in consultation with the faculty M.A. adviser and the chair of your thesis committee, as a sequence of related courses relevant to your thesis topic. Any changes in the approved program must be approved by both the committee chair and the M.A. adviser.

### 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.

## Undergraduate Courses

Courses 33A, 33B, 33C, 34, 35, 36, 103J, 106J, 109J are only for students whose first language is other than English. Placement in these courses is established on the basis of the English as a Second Language Placement Examination (ESLPE), which students whose mother tongue is not English must take instead of the Subject A Placement Test (see Subject A in Chapter 2). Depending on the results of this examination, entering students are (1) exempt from any special ESL requirement; (2) required to take course 33C; (3) required to take course 33B followed by course 33C; (4) required to take course 33A followed by courses 33B and 33C; or (5) required to spend a quarter studying elementary English exclusively, through UCLA Extension, followed by courses 33A, 33B, 33C.

## Lower Division Courses

**33A. Low Intermediate English as a Second Language.** Lecture, ten hours. Prerequisite: grade of C or better in X832 or proficiency demonstrated on the English as a Second Language Placement Examination. Intensive instruction in the structure of English, with focus on vocabulary building, reading and listening skills, and basic composition techniques.

**33B. Intermediate English as a Second Language.** Lecture, five hours. Prerequisite: grade of C or better in course 33A or proficiency demonstrated on the English as a Second Language Placement Examination. Emphasizes writing and reading comprehension skills. Additional work on grammar review, vocabulary development, listening, and speaking.

**33C. High Intermediate English as a Second Language.** Lecture, five hours. Prerequisite: grade of C or better in course 33B or proficiency demonstrated on the English as a Second Language Placement Examination. Emphasizes composition, research skills, and reading of unsimplified academic materials.

**34. Oral Communication Skills for ESL Students.** Prerequisite: grade of C or better in course 33C or proficiency demonstrated on the English as a Second Language Placement Examination. Develops oral skills that prepare nonnative speakers of English to participate in class discussion, make oral presentations before an audience, respond to questions, and improve through self-evaluation of speech.

**35. Developmental Composition for ESL Students.** Prerequisite: grade of C or better in course 33C or proficiency demonstrated on the English as a Second Language Placement Examination. Developmental composition skills for ESL students, with focus on the mechanics of writing, grammatical structures, and recognition of and practice with the major academic discourse modes.

**36. Intermediate Composition for ESL Students.** Prerequisite: grade of C or better in course 33C or proficiency demonstrated on the English as a Second Language Placement Examination. A course designed to improve English language writing skills for nonnative speakers of English. Special attention to grammatical structures, principles and methods of exposition, and writing for academic purposes.

## Upper Division Courses

**103J. Phonetics for ESL Students.** Prerequisite: grade of C or better in course 33C or proficiency demonstrated on the English as a Second Language Placement Examination. A detailed and systematic study of the sounds of American English and the way in which they are put together in connected speech, applied to the improvement of the student's own accent.

**103K. Phonetics for Teachers of English as a Second Language.** Prerequisite: consent of instructor. Analysis of the phonological structure of contemporary English, with attention to the differences between British and American speech. Drill directed toward individual needs. Mr. Andersen, Mr. Bowen

**106J. Advanced Composition for ESL Students.** Prerequisite: grade of C or better in course 33C or proficiency demonstrated on the English as a Second Language Placement Examination. Exercises in writing based on readings dealing with American life and thought, with the aim of developing idiomatic control of expression.

**106K. Writing in the ESL Context.** Limited to TESL certificate or M.A. candidates. Provides opportunities for practice and improvement in writing skills and thus fulfills the composition requirement for the TESL certificate. Surveys important theoretical and methodological issues related to the teaching of writing/composition to ESL students and examines appropriate classroom materials. Mr. Rand

**107K. Reading in the ESL Context.** Limited to TESL certificate or M.A. candidates. Provides opportunities for practice and improvement in writing skills and thus fulfills the composition requirement for the TESL certificate. Surveys important theoretical and methodological issues related to the teaching of reading to ESL students and examines appropriate classroom materials. Ms. Hatch

**109J. Introduction to Literature for ESL Students.** Prerequisite: grade of C or better in course 33C or proficiency demonstrated on the English as a Second Language Placement Examination. Selections from English and American literature presented so as to make full allowance for the students' linguistic and cultural problems and to contribute to an increasing command of the English language.

**109K. Literature in the ESL Context.** Limited to TESL certificate or M.A. candidates. Provides opportunities for practice and improvement in writing skills and thus fulfills the composition requirement for the TESL certificate. Surveys important theoretical and methodological issues related to the teaching of literature to ESL students and examines appropriate classroom materials. Strongly emphasizes the cultural basis for literature. Ms. Brinton, Mr. Povey

**111K. Background Language for Teachers of English as a Second Language.** Prerequisite: consent of instructor. Fulfills the foreign language requirement for the Certificate in Teaching English as a Second Language. Beginning course in a non-Indo-European language taught as a demonstration of recommended pedagogical techniques and designed to acquaint prospective language teachers with a wide variety of linguistic structures. Mr. Andersen (F)

**122K. Introduction to the Structure of Present-Day English (for Teachers of English as a Second Language).** Prerequisite: Linguistics 100 or consent of instructor. Introductory study of those grammatical structures of English most important in the ESL classroom. Aims to provide insights from traditional, structural, and particularly transformational grammar. Ms. Celce-Murcia (W)

## Graduate Courses

All graduate courses are open to qualified graduate students from other departments by consent of department.

**209K. Current Issues in Experimental Design and Statistics for Applied Linguistics.** (Formerly numbered 272K.) The course deals with specialized topics of interest to graduate students in TESL and applied linguistics. Emphasis varies according to current theoretical methodological trends in the field. Ms. Hatch, Mr. Rand (F,Sp)

**220K. Materials Development for Language Teaching.** (Formerly numbered 272K.) Prerequisites: course 370K and at least two years of ESL/EFL teaching experience. Planning and preparation of an original set of language teaching materials geared to the needs of a specified group of learners. Revision of first drafts and evaluation of one's own work and that of one's peers are emphasized. Ms. Celce-Murcia (Sp)

**221K. Media for Language Teaching.** (Formerly numbered 272K.) The course provides a 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 is provided, focusing on the application to ESL instruction. Ms. Brinton (W)

**222K. Language Testing for Teachers of English as a Second Language.** (Formerly numbered 261K.) Prerequisites: course 370K, Linguistics 100. Theories and techniques for language assessment across the skill areas are covered. Emphasis on classroom testing and the functions of testing within a language program. Basic statistical concepts are presented, as is hands-on experience with the construction of language tests. Mr. Rand (W)

**223K. Role of English as a Second Language in Bilingual Education.** (Formerly numbered 210K.) Prerequisites: course 370K, Linguistics 100. Survey of the literature, presentation of major research, and discussion of bilingual education programs in the United States. The course explores the linguistic, psychological, and sociological manifestations of bilingualism, with particular reference to aspects of learning, teaching, and testing language skills. Mr. Campbell, Ms. McGroarty (F)

**M224K. The Teaching of English for Minority Groups.** (Formerly numbered 224K.) (Same as English M274.) Prerequisites: course 370K, Linguistics 100, or consent of instructor. The course includes in-depth description of the dialects of English and of other languages (such as Spanish) used by groups of students in American schools. The origins, variations within, and current status of language varieties such as Black English and Chicano Spanish are presented, relevant research reviewed, and educational implications discussed. Mr. Bowen, Ms. McGroarty

**225K. Program Evaluation in Applied Linguistics.** Evaluation of the effectiveness of ESL curriculum and instruction, including the assessment of teacher behavior. Prevalent evaluation theories, the writing of evaluation proposals, developing program monitoring procedures, selecting appropriate evaluation design plans, framing the decision context, and reporting evaluation results. Ms. Hatch

**229K. Current Issues in Language Education.** (Formerly numbered 272K.) The course deals with specialized topics in language education of interest to graduate students in TESL and applied linguistics. Emphasis varies according to current topics of theoretical and practical import in the field. (W)

**232K. Advanced Seminar in the Construction and Administration of Language Tests.** (Formerly numbered 263K.) Prerequisite: course 222K or consent of instructor. The course is 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. Mr. Rand (Sp)

**241K. Contrastive and Error Analysis in the ESL Context.** (Formerly numbered 250K.) Prerequisites: course 370K, Linguistics 100. Analysis of English and other languages at the phonological, grammatical, lexical, and cultural levels. Preparing analyses of interlanguage for research purposes. Preparation of lesson plans for helping specific groups of students overcome common errors identified through the analyses. Observation of ESL classes. Mr. Andersen, Mr. Bowen, Mr. Schumann (W)

**249K. Current Issues in Language Analysis.** (Formerly numbered 272K.) The course deals with 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. Mr. Andersen, Ms. Celce-Murcia, Mr. Schumann

**M250K. Advanced Seminar in the Structure of Present-Day English.** (Formerly numbered 250K.) (Same as English M215.) Prerequisite: course 122K or consent of instructor. Investigation in depth of selected linguistic features of oral and written texts that go beyond the sentence level and thus signal cohesion. Structures are studied to determine their function in a variety of English texts representing several discourse types. Ms. Celce-Murcia (F)

**251K. Advanced Seminar in Interlanguage Analysis.** (Formerly numbered 272K.) Prerequisites: courses 241K, M250K. Students analyze interlanguage from various points of view (e.g., topic-comment structure, tense, aspect, modality, thematic structure of utterances), with the aim of understanding how interlanguage is organized. Students undertake original research projects. Mr. Andersen, Ms. Hatch, Mr. Schumann

**260K. Psycholinguistics and Language Teaching.** Prerequisites: courses 103K, 370K, and Linguistics 100, or consent of instructor. An exploration of those areas of psycholinguistics covering foreign language acquisition; types and theories of bilingualism; learning theories underlying the current methods of teaching foreign languages. Ms. Hatch, Mr. Schumann (F)

**261K. Second-Language Acquisition.** (Formerly numbered 262K.) Prerequisite: consent of instructor. The literature on child and adult second-language acquisition forms the basis for this lecture class. Language variables (phonological, morphological, syntactical, and discourse levels) and social and psychological variables which may account for differences in learning are considered. Mr. Andersen, Ms. Hatch, Mr. Schumann (F)

**269K. Current Issues in Language Acquisition.** (Formerly numbered 272K.) The course deals with 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. Mr. Andersen, Ms. Hatch, Mr. Schumann (W)

**280K. Language Policy in Developing Countries.** (Formerly numbered 270K.) Prerequisite: consent of instructor. Use of and need for English in countries such as Nigeria and the Philippines; factors affecting language policy in their school systems; applicability of research techniques of sociolinguistics and psycholinguistics to problems of language policy.

**281K. Language Policy in the United States.** Prerequisite: consent of instructor. Use of and need for the teaching of languages, both English and others, in the United States. Issues related to matters of language choice and language planning undertaken for various purposes; factors affecting language use, change, and standardization in the U.S. Ms. McGroarty (Sp)

**282K. Intercultural Communication and the Teaching of English as a Second Language.** (Formerly numbered 272K.) Prerequisite: consent of instructor. An introduction to the field of cross-cultural communication, with special attention to the cultural influences on language use. Presentation of theoretical frameworks describing variations in language use; discussion of literature and development of awareness and knowledge regarding cultural norms of language learning and use. Ms. McGroarty

**283K. Discourse Analysis.** (Formerly numbered 272K.) A 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. Ms. Hatch (W)

**284K. English for Specific Purposes.** (Formerly numbered 264K.) 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. Mr. Campbell (Sp)

**M285K. Studies in African Literature in English.** (Formerly numbered 285K.) (Same as English M261.) Prerequisite: consent of instructor. Special problems and trends of African literature in English. Mr. Povey (W)

**289K. Current Issues in Language Use.** (Formerly numbered 272K.) The course deals with 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. Mr. Campbell, Ms. Hatch, Ms. McGroarty (Sp)

**370K. The Teaching of English as a Second Language.** Lecture, six hours. Prerequisite: consent of instructor. Bibliography, survey, and evaluation of methods and materials. The nature of language learning. Analysis of the differences between two languages as a basis of instruction. Ms. Celce-Murcia, Ms. Hatch, Mr. Schumann (F)

**375K. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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. Ms. Erickson (F,W,Sp)

**380K. Supervised Teaching: English as a Second Language or Dialect.** Prerequisite: course 370K. Team teaching at the elementary, secondary, or adult level under the supervision of a senior staff member. P/NP (undergraduate students) and S/U (graduate students) grading. (Sp)

**400K. TESL Colloquium.** Prerequisite: consent of TESL M.A. adviser. M.A. candidates present and defend the results of their thesis research. Required of all candidates but may not be applied toward the M.A. degree requirements. Candidates for the Ph.D. in Applied Linguistics may also use this course to report on their dissertations. S/U grading. (Sp)

**495KA-495KB. Training and Supervision of Teaching Assistants (2 units each).** Lecture, two or more hours. Corequisite: appointment as a teaching assistant or Extension Division instructor. Orientation, preparation, and supervision of graduate students who have the responsibility for teaching ESL courses at UCLA. Syllabus revision and materials preparation. May not be applied toward the degree requirements for the M.A. or certificate in TESL or Ph.D. in Applied Linguistics. S/U grading. (F,W)

**596K. Directed Individual Study.** Prerequisite: graduate standing. Independent study in an area related to English as a second language. May not be repeated for credit.

**598K. 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 the degree is allowed only once, but all M.A. candidates must enroll in the course each quarter they are registered and engaged in thesis preparation. S/U grading. (F, Sp)

## Environmental Science and Engineering (Interdepartmental)

This interdisciplinary graduate program, which leads to the Doctor of Environmental Science and Engineering (D.Env.) degree, provides scientific training in the enlightened management of the environment through a broad range of environmental disciplines. For details on this program, see Chapter 17 on the School of Public Health.

## Ethnic Arts (Interdepartmental)

An intercollege, interdepartmental major in ethnic arts is open to students in both the College of Letters and Science and the College of Fine Arts. You enroll in the college of your choice and fulfill the breadth requirements of that college. For details on this undergraduate major, see Chapter 6 on the College of Fine Arts.

## Folklore and Mythology (Interdepartmental)

1041 Graduate School of Management, 825-3962

### Professors

Shirley L. Arora, Ph.D. (*Spanish and Portuguese*)  
Kees W. Bolle, Ph.D. (*History*)  
Margherita Cottino-Jones, Ph.D. (*Italian*)  
Elsie Dunin, M.A. (*Dance*)  
Patrick K. Ford, Ph.D. (*English*)  
Robert A. Georges, Ph.D. (*English*), Chair  
Marija Gimbutas, Ph.D. (*Slavic Languages and Literatures*)  
Melvyn B. Helstien, Ph.D. (*Theater Arts*)  
Nazir A. Jairazbhoy, Ph.D. (*Music*)  
Michael O. Jones, Ph.D. (*History*), Vice Chair  
Vladimir Markov, Ph.D. (*Slavic Languages and Literatures*)  
James W. Porter, M.A. (*Music*)  
Douglass Price-Williams, Ph.D. (*Anthropology*)  
Jaán Puhvel, Ph.D. (*Classics*)  
Stanley L. Robe, Ph.D. (*Spanish and Portuguese*)  
Allegra Snyder, M.A. (*Dance*)  
Robert M. Stevenson, Ph.D. (*Music*)  
Donald J. Ward, Ph.D. (*Germanic Languages*)  
Johannes Wilbert, Ph.D. (*Anthropology*)  
D.K. Wilgus, Ph.D. (*English and Music*)  
Wayland D. Hand, Ph.D., Emeritus (*Germanic Languages*)  
Charles Speroni, Ph.D., Emeritus (*Italian*)

### Associate Professors

Steven Lattimore, Ph.D. (*Classics*)  
Philip L. Newman, Ph.D. (*Anthropology*)  
Arnold Rubin, Ph.D. (*Art, Design, and Art History*)

### Assistant Professors

Jacqueline C. Djedje, Ph.D. (*Music*)  
Joseph F. Nagy, Ph.D. (*English*)  
Beverly J. Robinson, Ph.D. (*Theater Arts*)

### Adjunct Professor

Marianna D. Birnbaum, Ph.D. (*Germanic Languages*)

### Adjunct Lecturer

Inkeri A. Rank, M.Ed. (*Scandinavian Languages*)

## 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 life-styles 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, song, music, art, dance, 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 ethnic arts 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.

## Master of Arts Degree

### Admission

Two letters of recommendation from former instructors or other comparable references are required.

### Foreign Language Requirement

Reading knowledge of French, German, or Spanish is required. You have the option of demonstrating proficiency either by:

- (1) Passing the fifth quarter or fourth semester course in the chosen foreign language at a college or university with a grade of B or equivalent no more than five years before graduate enrollment, or
- (2) Successfully completing the Educational Testing Service GSFLT examination with a score of 500 or better, or
- (3) Passing a reading examination administered and evaluated by members of the program faculty (or by outside faculty for languages not familiar to the program faculty).

### Course Requirements

All degree candidates, whether electing the thesis or the comprehensive examination plan (see below), must complete the following courses: Folklore 200, 201A, 201B, 216, and at least one course from each of the following groups:

- Group 1: One course in folk song or folk music.
- Group 2: One course in the folklore and mythology of a specific culture or culture area.
- Group 3: One course in the mythology of a specific culture or in the principles of mythology.



Group 4: One graduate seminar in an area of folklore and mythology.

Only eight units of course 596 may be applied toward the minimum course requirements.

### Thesis Plan

If you select this plan, you must complete a minimum of ten 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 will be followed by an oral examination covering the fields of folklore and mythology studies.

The thesis committee, composed of three or more faculty members selected with the approval of the Chair of the interdepartmental committee, is appointed no later than the quarter before you expect to complete the requirements. No outside members are required.

### Comprehensive Examination Plan

If you plan to pursue a Ph.D. degree in Folklore and Mythology, you must elect this plan and must complete a minimum of ten courses (six in the 200 series; two 596 courses may be included). After completion of the coursework, you will be 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.

## Ph.D. 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 comprehensive examination. You will be admitted to the doctoral program on the recommendation of the interdepartmental committee (you may secure provisional admission in order to complete the admission requirements).

### Major Fields or Subdisciplines

You 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 will be selected with the approval of the guidance committee.

### Foreign Language Requirement

Reading knowledge of German and another language approved by the guidance committee is required. You may demonstrate proficiency in any of the three ways described above under "Foreign Language Requirement" for the master's degree.

The foreign language examinations must be completed before you attempt the qualifying examinations.

## Course Requirements

Before attempting the qualifying examinations, you must complete a minimum of nine courses or seminars in the 200 series (or substitutes recommended by the guidance committee) in (1) folklore and mythology and (2) related disciplines.

### Qualifying Examinations

After the required preparation, you will complete a written examination covering (1) your specialization in folklore and mythology and (2) your related area of concentration. The examination will be administered by a committee appointed with the approval of the interdepartmental committee and will include one or more members from your related discipline.

The written examination is followed by a University Oral Qualifying Examination, which you must pass in order to be advanced to candidacy. The oral examination is administered by the doctoral committee, which will also consider and approve your dissertation topic.

### Final Oral Examination

A successful oral defense of the dissertation will constitute the final examination for the degree.

## Lower Division Course

**15. Introduction to American Folklore Studies.** Lecture/discussion. A cultural-historical survey of the role of folklore in the development of American civilization and of the influence of the American experience in shaping folklore in American society; attention also to representative areas of inquiry and analytical procedures.

## Upper Division Courses

**101. Introduction to Folklore.** Prerequisite: junior standing. A survey of the various forms of folklore and an examination of their historical and social significance.

**CM106. Anglo-American Folk Song.** (Formerly numbered M106.) (Same as English M111B.) Prerequisites: satisfaction of Subject A requirement, junior standing. A 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. Mr. Wilgus

**108. Afro-American Folklore and Culture.** Prerequisite: course 101 or consent of instructor. A study of the traditional genres or forms of Afro-American folklore and their cultural functions. Ms. Robinson

**M111. The Literature of Myth and Oral Tradition.** (Same as English M111A.) Prerequisite: satisfaction of Subject A requirement. A study of myth, dramatic origins, oral epic, folktale, and ballad, emphasizing Indo-European and Semitic examples. Mr. Nagy

**M112. Survey of Medieval Celtic Literature.** (Same as English M111E.) Prerequisite: satisfaction of Subject A requirement. Knowledge of Irish or Welsh is not required. A general course dealing with Celtic literature from the earliest times to the 14th century. Mr. Ford

**113. The Arthurian Tradition.** Prerequisite: consent of instructor. A survey of the traditions relating to the 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). Mr. Porter

**118. Folk Art and Technology.** Prerequisite: junior standing. A general course concerned with the material manifestations of folk culture and the theoretical concepts and methodologies utilized in their analysis. Mr. Jones

**M121. British Folklore and Mythology.** (Same as English M111C.) Prerequisites: satisfaction of Subject A requirement, junior standing. A survey of the folklore of the peoples of Britain, with attention to their history, function, and regional differences. Mr. Nagy, Mr. Porter

**M122. Celtic Mythology.** (Same as English M111D.) Prerequisite: course 101 or consent of instructor. A survey of the early materials, chiefly literary, for the study of the mythic traditions of the Celtic peoples, ranging from ancient Gaul to medieval Ireland and Wales. Mr. Ford

**M123A. Finnish Folklore and Mythology.** (Same as Scandinavian M123A.) The methods and results of Finnish folklore studies and the mythic traditions of the Finns. Special attention to the oral epic, beliefs, and legends. Ms. Rank

**M123B. Finnish Folk Song and Ballad.** (Same as Scandinavian M123B.) Course M123A is not prerequisite to M123B. A survey of Finnish balladry and folk song, with attention to historical development, ethnic background, and poetic and musical values. Ms. Rank

**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. Ms. Rank

**M125. Folklore and Mythology of the Lapps.** (Same as Scandinavian M125.) Survey of Lappish beliefs, customs, and various genres of oral tradition, including tales, legends, songs, and music. Attention also to the material manifestations of Lappish culture: arts and crafts, textiles, costume, folk technology. Ms. Rank

**M126. Baltic and Slavic Folklore and Mythology.** (Same as Slavic M179.) Lecture, three hours. A general course for students interested in folklore and mythology and for those interested in Indo-European mythic antiquities. Mrs. Gimbutas

**M127. Celtic Folklore.** (Same as English M111F.) Prerequisite: course 101 or consent of instructor. The folkloric traditions of modern Ireland, Scotland, and other Celtic countries, with attention to current techniques of folkloristic research. Mr. Nagy

**M128. Hungarian Folklore and Mythology.** (Same as Hungarian M135.) A general course for the student in folklore and mythology, with emphasis on types of folklore and varieties of folklore research. Ms. Birnbaum

**M129. Folklore and Mythology of the Ugric Peoples.** (Same as Hungarian M136.) Survey of the traditions of the smaller Ugric nationalities (Voguls, Ostyaks, etc.). Ms. Birnbaum

**130. North American Indian Folklore and Mythology Studies.** Prerequisite: course 101 or consent of instructor. An examination of folkloristic and mythological data recorded from various North American Indian peoples within the contexts of the principal ideological frameworks which have been evolved historically for the analysis of such data. Mr. Georges

**131. Folklore of India.** Prerequisite: course 101 or consent of instructor. A survey of the folklore of India, with special reference to the content and dissemination of oral epics, ballads, legends, and beliefs. Mr. Jairazbhoy

**M140. From Boccaccio to Basile (in English).** (Same as Italian M140.) Lecture, three hours. A study of the origins and the development of the Italian novella in its themes, in its structure, in its historical context, and in its European ramifications. The course is designed for students in other departments who wish to become acquainted with either the premises or the growth of similar literary genres. It is also intended for students majoring in folklore and mythology, who are given an 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.

Mrs. Cottino-Jones

**M142. Introduction to Jewish Folklore.** (Same as Jewish Studies M143.) The nature of Jewish folklore; narrative, folk song, folk art, folk religion, and the methods and perspectives used in their analysis.

**M149. Folk Literature of the Hispanic World.** (Same as Spanish M149.) Lecture, three hours. A study of the history and present dissemination of the principal forms of folk literature throughout the Hispanic countries.

Ms. Arora, Mr. Robe

**M150. Russian Folk Literature.** (Same as Russian M150.) Lecture, three hours. Lectures and readings in Russian.

**M154A-M154B. The Afro-American Musical Heritage.** (Same as Music M154A-M154B.) Prerequisite: Music 1A or consent of instructor. Course M154A is prerequisite to M154B. A study of Afro-American rhythm, dance, music, field hollers, work songs, spirituals, blues, and jazz; the contrast between West African, Afro-American, and Afro-Brazilian musical traditions.

Ms. Djedje

**M155. Oral Traditions in Africa.** (Same as English M111G.) Prerequisite: upper division standing. A survey of African folk traditions: folktale, epic, heroic poetry, and folk song.

**163. Folklore and Oral History.** Prerequisite: junior standing. An examination of the 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.

**M170. Russian Folklore.** (Same as Russian M170.) Lecture, three hours. A general introduction to Russian folklore, including a survey of genres and related folkloric phenomena. Lectures and readings in English.

**172. Folklore in Ethnic Context.** Prerequisite: course 15 or 101 or consent of instructor. The role of folklore in ethnic relations; the processes by which ethnic folklore is generated, transmitted, and maintained by immigrant groups and subsequent generations.

**M180. Analytical Approaches to Folk Music.** (Same as Music M180.) Prerequisites: Music 5A-5B-5C or consent of instructor. An intensive study of the methods and techniques necessary to the understanding of Western folk music.

Mr. Porter

**M181. Folk Music of Western Europe.** (Same as Music M181.) Prerequisite: consent of instructor. The course introduces students to the forms and styles of traditional music in Western Europe. Historical and ethnological perspectives on this music are combined with numerous recorded examples from the major cultural subdivisions of the region.

Mr. Porter

**190. Selected Topics in Folklore and Mythology Studies.** Prerequisites: course 15 or 101, and consent of instructor. A proseminar focusing on selected problems, data, or themes in folklore and mythology studies.

**199. Special Studies in Folklore (2 to 4 units).** Prerequisites: senior standing and consent of instructor.

## Graduate Courses

**200. Folklore Bibliography, Theory, and Research Methods.** A basic course in theory and bibliography for folklore students, including the techniques of research necessary for serious folklore study.

Mr. Georges, Mr. Ward

**201A. Folklore Collecting and Field Research.** Prerequisite: course 200. Discussion/demonstration concerning the theoretical concepts, methods, and techniques of data gathering and field research in folklore.

Mr. Jones, Mr. Wilgus

**201B. Folklore Collecting and Field Research.** Prerequisite: course 201A. The supervised completion of a fieldwork project developed in course 201A.

Mr. Jones, Mr. Wilgus

**202A-202B. Folklore Archiving (2 units each).** Prerequisite: course 200. One quarter of lecture/demonstration in the principles and techniques of the classification and preservation of folklore collectanea, followed by one quarter of directed experience in archiving.

Mr. Georges

**M205. Perspectives in American Folklore Research.** (Same as English M205.) Prerequisites: course 101 and one other upper division folklore course. An examination of American folklore studies compared and contrasted with investigations in other countries, with emphasis on the principal conceptual schemes and research orientations employed in the study of folklore in American society.

Mr. Georges, Mr. Jones, Mr. Wilgus

**C206. Anglo-American Folk Song.** Prerequisite: graduate standing. A 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.

Mr. Wilgus

**208. Afro-American Folklore and Culture.** Prerequisite: graduate standing. The course examines the theoretical and methodological constructs which have contributed to the body of Black cultural expression in the United States.

Ms. Robinson

**213. Folk Belief and Custom.** Prerequisites: course 101 and one course from 118, M121, M122, M123A, M123B, 124, M125, M126, M128, M149, M150, Anthropology 156, German 134, 240A, 240B, 240C. A study of beliefs and customs in the folk community: the life cycle, calendrical and agricultural customs, and legal antiquities.

Mr. Jones, Mr. Ward

**215. The Popular Legend.** Prerequisite: course 200 or consent of instructor. A study of the categories of legendry and their relation to myth, custom, ritual, popular beliefs, and ballads.

Mr. Ward

**216. The Folktale.** Prerequisite: course 200 or consent of instructor.

Mr. Georges, Mr. Ward

**217. Folk Speech.** Prerequisite: course 101, CM106, or M111. Recommended: Anthropology M140, English 121, or Linguistics 100. A study of the ethnography of communication and its relevance to the study of social and regional dialects, proverbs, riddles, onomastics, folk poetry and verse, and traditional humor.

Mr. Georges

**218. Folk Art, Craft, and Aesthetics.** Lecture, three hours. Prerequisite: course 200. An examination of research orientations and findings in regard to what has been called folk art, craft, and aesthetics. Course organization reflects major perspectives and areas of inquiry from the latter part of the 19th century to the present.

Mr. Jones

**M219. Seminar in the Puppet Theater.** (Same as Theater Arts M217B.) Lecture, three hours. Prerequisite: consent of instructor. Studies in the puppet theaters of the world: techniques, literature, aesthetics.

**228. Seminar: Topics in Celtic Folklore and Mythology.** Lecture, three hours. Prerequisites: course 200 plus coursework in Celtic studies. The seminar prepares students for the 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.

Mr. Ford, Mr. Nagy

**M230A-M230B. Folk Tradition in Italian Literature.** (Same as Italian M230A-M230B.) Lecture, two hours.

**M235. African Myth and Mythology.** (Same as English M235.) Prerequisite: graduate standing. The seminar examines the methods of analyzing and appreciating African myths and mythological systems.

**240. Introduction to Jewish Folk Literature.** Prerequisites: upper division standing and consent of instructor, or graduate standing. An examination of both the historic and generic methods used in the 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. A study of the English and Scottish popular ballads and their American derivatives, with some attention to European analogues.

Mr. Wilgus

**M243B. Problems in Ballad Scholarship.** (Same as English M243B.) Prerequisite: course M243A or consent of instructor. Intensive investigation of a problem or problems in the study of the popular ballad.

Mr. Wilgus

**248. Theory and Method in Latin American Folklore Studies.** A historical survey of folklore scholarship in Latin America, with emphasis on the theoretical bases, methods, and techniques employed in the study and analysis of traditional tales, songs, music, linguistic expression.

**M249. Hispanic Folk Literature.** (Same as Spanish and Portuguese M249.) Seminar, three hours. Prerequisite: graduate standing. An intensive study of folk literature as represented in (1) ballad and poetry, (2) narrative and drama, (3) speech.

Ms. Arora, Mr. Robe

**251. Seminar in Finno-Ugric Folklore and Mythology.** Advanced studies in the 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. An examination of oral traditions and related ethnological data from various South American Indian societies against the background of the religious systems of these people.

Mr. Wilbert

**M258. Seminar in Folk Music.** (Same as Music M258.) Seminar, three hours. Prerequisite: consent of instructor.

Mr. Porter, Mr. Wilgus

**259. Seminar in Folklore.** Prerequisites: course 200 and consent of instructor.

**M286A-M286B-M286C. Studies in Hispanic Folk Literature.** (Same as Spanish M286A-M286B-M286C.) Seminar, two hours:

**M286A. The Romancero.** Prerequisite: Spanish 222.

**M286B. Narrative and Drama.** Prerequisite: course M249.

Ms. Arora, Mr. Robe

**M286C. Ballad, Poetry, and Speech.** Prerequisite: course M249.

Ms. Arora, Mr. Robe

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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 department Chair. Directed individual projects in professional editing, bibliography, discography, filmography, festival direction, and other professional activities. May not be applied toward the M.A. course requirements. May be repeated for credit. S/U grading.

**495A-495B. The Teaching of Folklore and Mythology.** Prerequisite: course 200. 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 the M.A. course requirements. In Progress and S/U grading.

Mr. Georges, Mr. Jones

**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. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. S/U grading.

**596. Directed Studies in Folklore (2 to 6 units).**

**597A. Preparation for M.A. Comprehensive Examinations (2 to 4 units).** Prerequisites: graduate standing in folklore and mythology and 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 and 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

**African Languages (Linguistics)** 150A-150B-150C. African Literature in English Translation

**Anthropology** 118A, 118B. Museum Studies

133P. Social and Psychological Aspects of Myth and Ritual

133R. Aesthetic Anthropology

156. Comparative Religion

230P. Ethnology

232Q. Myth and Ritual

233Q. Aesthetic Anthropology

M247A. Ethnographic Film

264. Ethnography of the Mexican/Chicano People in North America

271. African Cultures

M272. Indians of South America

273. Cultures of the Middle East

274. Cultures of the Pacific Islands

**Art** 102. Art of the Ancient Near East

C117A. Advanced Studies in Pre-Columbian Art: Mexico

C117B. Advanced Studies in Pre-Columbian Art: Central America

C117C. Advanced Studies in Pre-Columbian Art: The Andes

118A. The Arts of Oceania

118B. The Arts of Pre-Columbian America

118C. The Arts of Sub-Saharan Africa

118D. The 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. The Arts of Africa, Oceania, and Pre-Columbian America

**Bulgarian (Slavic Languages)** 99. Introduction to Bulgarian Civilization

**Classics** 161. Introduction to Classical Mythology

162. Classical Myth in Literature

166A. Greek Religion

166B. Roman Religion

168. Introduction to Comparative Mythology

268. Seminar in Comparative Mythology

**Comparative Literature** C240. Medieval Epics

**Dance** 134A. History of Dance in Western Culture, Origins to 1600

180A-180B. Introduction to Dance Ethnography

181A. Dance Cultures of Asia

181B. Dance in Southeast Asia

181C. Dance in East Asia

181D. Dance in South Asia

182A. Dance Cultures of Africa

183A. Dance Cultures of Latin America

184B. Dance in the Balkans

187A. Dance Cultures of Native American Indians

280A-280E. Advanced Studies in Dance Ethnology

**English** 112. Children's Literature

220. Readings in Medieval Literature

**French** 115A-115F. Medieval French Literature

215A-215F. The Medieval Language and 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 in Germanic Folklore

**History** 193A. History of Religions: Myth

**Italian** 214E. The *Decameron*

217B. Commedia dell'arte and the Theatre

218C. The Theater, Especially Metastasio, Goldoni, C. Gozzi

**Music** 132A-132B. Development of Jazz

140A-140B-140C. Musical Cultures of the World

141. Survey of Music in Japan

142A-142B. Folk Music of Eastern Europe and the Mediterranean

143A-143B. Music of Africa

147A-147B. Music of China

148. Folk Music of South Asia

149. The Anthropology of Music

152. Survey of Music in India

153A-153B-153C. Music of the American Indians

158. New Orleans Jazz

C190A-C190B. Proseminar in Ethnomusicology

253. Seminar in Notation and Transcription in Ethnomusicology

254A-254B. Seminar in Field and Laboratory Methods in Ethnomusicology

255. Seminar in Musical Instruments of the Non-Western World

280. Seminar in Ethnomusicology

281A-281B. Music of Indonesia

282. Music of Iran and Other Non-Arabic-Speaking Communities

285. Music of Tibet

287. Seminar in African Music

288. Seminar in North American Indian Music

**Old Norse Studies (Germanic Languages)** 40. The Heroic Journey in Northern Myth, Legend, and Epic

140. Viking Civilization and Literature

**Romanian (Slavic Languages)** 99. Introduction to Romanian Civilization

**Russian (Slavic Languages)** 251A-251B. Old Russian Literature

291A. Seminar in Old Russian Literature

**Slavic (Slavic Languages)** 99. Introduction to Slavic Civilization

**Sociology** 124. Ethnic and Status Groups

130. Social Processes in Africa

131. Latin American Societies

132. Population and Society in the Middle East

133. Comparative Sociology of the Middle East

**Spanish (Spanish and Portuguese)** 262B. Studies in Medieval and Renaissance Literature: Epic Poetry

**Theater Arts** C117. The Puppet Theater

## Foreign Literature in Translation

The following courses offered in the departments of language and literature do not require a reading knowledge of any foreign language:

**African Languages (Linguistics)** 150A-150B-150C. African Literature in English 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

**Armenian (Near Eastern Languages)** 150A-150B. Survey of Armenian Literature in English

**Bulgarian (Slavic Languages)** 154. Survey of Bulgarian Literature

**Classics** 141. A Survey of Greek Literature in English

142. Ancient Drama

143. A Survey of Latin Literature in English

144. A Survey of Greek and Roman Epic in Translation

**Czech (Slavic Languages)** 155A-155B. Czech Literature

**Dutch-Flemish and Afrikaans (Germanic Languages)** 112. Dutch, Flemish, Afrikaans Literature in Translation

**East Asian Languages and Cultures** 140A-140B-140C. Chinese Literature in Translation

141A-141B. Japanese Literature in Translation

**English** 108A-108B. The English Bible as Literature

**French** 142. Contemporary French Theater in Translation

143. Modern French Thought

144A-144B-144C. The French Novel in Translation

145. Topics in French Literature

**German (Germanic Languages)** 119A. Older German Literature in Translation

119B. Classical German Literature in Translation

119C. 19th-Century German Literature in Translation

119D. Modern German Literature in Translation—Narrative Prose I

119E. Modern German Literature in Translation—Narrative Prose II

119F. Modern German Literature in Translation—Drama and Lyrics

119G. Modern German Jewish Literature in Translation

119J. The Faust Tradition from the Renaissance to the Modern Age

**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. Main Trends in Italian Literature

110A-110B. The *Divine Comedy* in English

M140. From Boccaccio to Basile (in English)

150. Modern Italian Fiction in Translation

**Jewish Studies (Near Eastern Languages)** 151A-151B. Modern Jewish Literature in English

**Old Norse Studies (Germanic Languages)** 40. The Heroic Journey in Northern Myth, Legend, and Epic

140. Viking Civilization and Literature

**Polish (Slavic Languages)** 152A-152B. Survey of Polish Literature

160. Polish Romanticism

**Romanian (Slavic Languages)** 152. Survey of Romanian Literature

**Portuguese (Spanish and Portuguese)** 140A-140B. Luso-Brazilian Literature in Translation

**Russian (Slavic Languages)** 100. 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** 138. Survey of Finnish Literature

141. Backgrounds of Scandinavian Literature

142. Scandinavian Literature of the 19th Century

143. Modern Scandinavian Literature

C144. Henrik Ibsen

C145. August Strindberg

C146. Søren Kierkegaard

C147. Knut Hamsun

C182. The Theory of the Scandinavian Novel

**Serbo-Croatian (Slavic Languages)** 154A-154B. Yugoslav Literature

**Spanish (Spanish and Portuguese)** 160A-160B-160C. 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

160 Haines Hall, 825-1145

### Professors

Marc Bensimon, Ph.D.  
Eric Gans, Ph.D., *Chair*  
Hassan el Nouty, Docteur ès Lettres  
Francis J. Crowley, Ph.D., *Emeritus*  
Milan S. La Du, Ph.D., *Emeritus*  
L. Gardner Miller, Docteur de l'Université de Strasbourg, *Emeritus*  
Oreste F. Pucciani, Ph.D., *Emeritus*

### Associate Professors

Patrick Coleman, Ph.D.  
Stephen D. Werner, Ph.D.

### Assistant Professors

Jean-Claude Carron, Ph.D.  
Shuhsi Kao, Ph.D.  
Sara Melzer, Ph.D.  
James Reid, Ph.D.

### Lecturers

Colette Brichant, Docteur  
Jacqueline Hamel-Baccash, Licenciée-ès-Lettres  
Madeleine Korol-Ward, Ph.D.  
Padoue de Martini, B.A.

## Scope and Objectives

French is second only to English as a language of international culture, and French literature is perhaps the richest and most consistently significant of all world literatures. In recent decades French critical thought has maintained a dominant position in the Western world. The French Department seeks to give its students not merely a background in French language and literature, but an opportunity to synthesize literary and linguistic study with examination of the critical intellectual questions of our time.

The lower division program is designed to provide a minimal competence in French after one year and a thorough basic knowledge of the language after two years. From the first day of French 1 all instruction is conducted in French.

The upper division program is chiefly devoted to perfecting linguistic skills and to the study of French literature. Courses in civilization and linguistics 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 civilization.

The graduate program comprises training in the various fields of French literature and thought, as well as in literary criticism and analysis. A number of courses in linguistics and stylistics are also offered. The department offers both the M.A. and Ph.D. degrees and admits several new graduate students each year, including many from France and a wide variety of other countries.

## Bachelor of Arts Degrees

### Preparation for the Majors

*Required:* French 1, 2, 3, 4, 5, 6, 12, and 15, or equivalent. You will normally take course 6 before undertaking course 12 or 15. If you received a grade of A in course 5, you may enroll in course 12 concurrently with course 6 by consent of instructor.

### The Majors

Four majors are offered by the department:

**Plan A** leads to the Bachelor of Arts in French and subsequently to the master's degree (Plan A) or to the standard elementary or secondary credential. *Required:* Fifteen full courses of upper division work, including French 100A, 100B, 100C, 103, 114A-114B-114C; two quarters from courses 132 through 135\*; three courses in French literature from 115A through 120D\*\*; three elective courses normally selected from upper division courses in the Department of French in language, civilization, or literature. A maximum of one upper division course outside the department may be included in the major program by consent of the undergraduate adviser.

\*A course in French history may be substituted for one of these by consent of the major adviser.

**Plan B**, with emphasis on literature, leads to the Bachelor of Arts in French and subsequently to the master's degree (Plan B or C). *Required:* Fifteen full courses of upper division work, including French 100A, 100B, 100C, 103, 114A-114B-114C; six courses in French literature from 115A through 120D\*\*; two elective upper division courses to be selected in consultation with a major adviser, either from the Department of French, from the humanities or social sciences division of the College of Letters and Science, or from the College of Fine Arts.

**Plan C (French Studies)** is a core program in French allowing for individual selection of relevant courses in related fields in the humanities, the social sciences, linguistics, etc. *Required:* Fifteen full courses of upper division work, including French 100A, 100B, 100C, 103, 114A-114B-114C; three courses in French literature from 115A through 120D\*\*; five upper division elective courses in the fields relevant to French studies to be selected in or out of the Department of French in consultation with the undergraduate adviser. This program does not normally prepare you for admission to the master's program in French at UCLA (see Plans A and B).

\*\*In all major plans one course from the 121 series and/or one undergraduate seminar (French 150 through 160, not including 157) may be substituted for courses in the 115A through 120D offerings.

**Plan D (French and Linguistics)** leads to a Bachelor of Arts degree in French and Linguistics. In addition to the normal preparation for the major, you are required to complete the sixth quarter of work in one other foreign lan-

guage or the third quarter in each of two other foreign languages. *Required:* French 100A, 100B, 100C, 103, 114A-114B-114C; two courses from French 105, 106, 107, 108A; Linguistics 100, 103, 110, 120A, 120B, and 164 or C165A or C165B.

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 100A, 100B, or 100C, you may substitute for those courses in grammar and composition an equivalent number of upper division courses in the Department of French 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 major students must complete a minimum of nine courses of appropriate upper division work in the UCLA Department of French. 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 a major adviser before registering for upper division courses.

## 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 with a lower GPA may also apply for admission to the program). If you are interested, contact the department during your junior year.

To graduate with departmental honors, you must take French 140A and 140B and/or two upper division literature courses for honors credit. In order to receive honors credit for a nonhonors upper division literature course, you must arrange with the professor to do an extra honors project. On the basis of your coursework, you are expected to choose a research topic you wish to pursue in greater depth. You must then take course 140C where you will receive personal supervision from a faculty member in researching and writing the topic. The three courses will count as literature courses for the purpose of satisfying major requirements.

## Teaching Credential Requirements

If you wish a single subject teaching 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 (201 Moore Hall) and/or the Department of French.

## Master of Arts Degree

### Admission

The Graduate Record Examination Aptitude Test, a sample of written work in French, and three letters of recommendation are required. A Bachelor of Arts in French is desirable but not mandatory.

### Major Fields or Subdisciplines

The corpus of French literature is divided into three chronological periods: (1) medieval/Renaissance; (2) classical (roughly the 17th and 18th centuries); and (3) modern (since 1800), with Franco-African literature as an option.

### Foreign Language Requirement

The foreign language requirement will be fulfilled by passing a course of at least level three in either German, Latin, Spanish, or Italian; by passing the University reading examination in one of these languages; or by passing the Educational Testing Service (ETS) language examination with a score of 500 or better. In special cases, substitution of another foreign language will be accepted if approved by the graduate adviser. You must complete the foreign language requirement before taking the M.A. examination (Plan A or B) or submitting your thesis (Plan C). All candidates for the M.A. must be proficient in spoken French.

### Plans of Study

The department offers three master's programs: Plan A, designed for teachers of French at the secondary and junior college levels (students whose goal is not the Ph.D. in French) and Plans B (comprehensive examination plan) and C (thesis plan), leading to the Ph.D. in French.

**Plan A Course Requirements:** At least 12 courses in French are required, normally including 201D and 310A-310B or 370/495 (or any combination of one theory and one observation course). Among these 12 courses, you must take at least seven courses in literature, including at least three courses in each of two periods (one of which must be in the modern period). At least six of the courses must be at the graduate level.

**Plan A Comprehensive Examination:** Written examinations of three hours in length in each of the two periods prepared, a two-hour examination in translation and literary composition, a two-hour *explication de texte*, and an oral examination in French are required. The examinations are given in the Fall and Spring Quarters. At the discretion of the department you may be permitted to retake the examinations once.

**Plans B and C Course Requirements:** At least 12 courses in French are required, normally including 201D, at least three courses in each of two periods, and at least one course from 202 through 207. At least eight of the courses must be at the graduate level. Students in Plan C may include four units of credit for course 598.

**Plan B Comprehensive Examination:** Written examinations of four hours in length in each of the two periods prepared, a two-hour *explication de texte*, and an oral examination in French are required. The examinations are given in the Fall and Spring Quarters and may be retaken once.

**Plan C Admission Requirements and Oral Qualifying Examination:** You may apply to the Chair of the department for admission into Plan C after completing at least six graduate 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.

Final admission into Plan C (i.e., permission to write the thesis) is contingent on passing a one-hour oral examination in the two periods prepared. If you fail this examination, the examining committee will determine whether you may be permitted another attempt or be advised to take the comprehensive examination (Plan B).

The thesis should demonstrate proficiency in the methods and concepts of literary research; a suitable length will normally be about 50 pages. A tentative outline of the proposed thesis must be approved by the thesis committee in writing before work on the thesis is begun. Final approval of the thesis by the committee is also required.

## Terminal M.A. Degree

Decision to award a terminal M.A. degree to students in Plan B or C is made by the department on the basis of (1) M.A. examination papers, (2) oral examination, and (3) overall appraisal of record.

## Ph.D. Degree

### Admission

Completion of a master's degree (Plan B or C) with recommendation for continuance by the

M.A. committee is required; outside applicants need an M.A. degree or equivalent and three letters of recommendation, as well as the Graduate Record Examination Aptitude Test and a sample of written work in French.

Admitted students holding the M.A. or *Maitrise* from another institution must take an oral *examen de passage* in two periods of literary history in order to be formally admitted to the doctoral program. This examination should be taken during the first year of 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: (1) medieval/Renaissance; (2) classical (roughly the 17th and 18th centuries); and (3) modern (since 1800), with Franco-African literature as an option.

### Foreign Language Requirement

(1) Two languages up to levels five and six respectively, selected on consent of the guidance committee from Latin, German, Russian, and Spanish, are required. Language requirements may also be satisfied by taking the Educational Testing Service (ETS) examination with level five corresponding to a score of 550 and level six, 600. Substitution of another language, when warranted by the nature of your specialization, must be recommended by the guidance committee and approved by the graduate adviser.

(2) When the nature of your specialization requires the knowledge of a third language (in addition to the two normally required), the guidance committee is expected to take into account the extra work implied in making its other recommendations.

(3) Language requirements are to be completed before taking the doctoral qualifying examination.

### Course Requirements

The following courses are required: (1) at least three courses from the French 202 through 207 series, including one from the 203 series; (2) at least four seminars, two of which should be in your proposed period of specialization; (3) at least two graduate courses in other departments related to the area of specialization. In addition, you are expected to follow the guidance committee's suggestions in taking courses in preparation for the doctoral qualifying examination.

### Qualifying Examinations

Four written examinations of four hours each are required as follows: (1) focused specifically in the area of the prospective dissertation topic; (2) dealing with a more general subject related to the dissertation topic; (3) in a cognate field related to the methodology or approach you plan to employ in the dissertation; (4) in the period not covered at the M.A. level.

The topics to be dealt with in parts 1, 2, and 3 will be determined by prior consultation with the doctoral guidance committee. At the discretion of the department, you may be permitted to retake a failed examination once.

After passing the written examinations, you will be admitted to the University Oral Qualifying Examination. This examination, normally of two hours duration, will bear chiefly on parts 1 and 2 of the written examinations and on the proposed dissertation subject. You are expected to submit a written outline of research plans before the oral examination.

### Final Oral Examination

This examination is no longer required but may be imposed at the discretion of an individual doctoral committee.

### Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

### Lower Division Courses

Students who have had special advantages in preparation may, through placement examinations or by recommendation of the instructor, be permitted a more advanced program. No credit will be 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. Not open for credit to students who have completed two years of high school French or equivalent with grades of C or better. Ms. Hamel-Baccash in charge

**1G. Elementary French for Graduate Students (3 units).** Preparation for ETS or other language examinations. A passing grade does not imply satisfaction of language requirements. S/U grading. Ms. Brichant

**2. Elementary French.** Lecture, five hours. Prerequisite: course 1 with a grade of C- or better or one year of high school French. Not normally open for credit to students who have completed two years of high school French or equivalent. Ms. Hamel-Baccash in charge

**2G. Elementary French for Graduate Students (3 units).** Prerequisite: course 1G or equivalent. Preparation for ETS or other language examinations. A passing grade does not imply satisfaction of language requirements. May be repeated. S/U grading. Ms. Brichant

**3. Elementary French.** Lecture, five hours. Prerequisite: course 2 with a grade of C- or better or two years of high school French or advanced placement standing. Ms. Hamel-Baccash in charge

**4. Intermediate French.** Lecture, five hours. Prerequisite: course 3 with a grade of C- or better or three years of high school French or advanced placement standing. Ms. Hamel-Baccash in charge

**5. Intermediate French.** Lecture, five hours. Prerequisite: course 4 with a grade of C- or better or four years of high school French or advanced placement standing. Ms. Hamel-Baccash in charge

**6. Intermediate French.** Lecture, five hours. Prerequisite: course 5 with a grade of C- or better or advanced placement standing. Ms. Hamel-Baccash in charge

**10A-10D. French Conversation (2 units each).** Discussion, three hours. Prerequisite: course 3 with a grade of A or B or consent of department.

**12. Introduction to the Study of French Literature.** Lecture, three hours. Prerequisite: course 6 or equivalent or consent of instructor. Principles of literary analysis as applied to selected texts in poetry and prose.

**15. Theory and Correction of Diction.** Prerequisite: course 6 or consent of instructor. French pronunciation, diction, intonation in theory and practice; phonetic transcription, phonetic evolution of the modern language; remedial exercises; recordings. Ms. Korol-Ward in charge

### Upper Division Courses

Prerequisites to all upper division courses taken in partial fulfillment of the French major are French 6, 12, 15, or equivalent. Credit will ordinarily not be allowed for completing a less advanced course after successful completion of a more advanced course in grammar and/or composition. Courses 104, 105, 106, 107, and 108A are not sequential and may be taken in any order, provided the prerequisites for each course are fulfilled.

**100A. Advanced Grammar I.** Prerequisites: course 6 and (normally) 15, or equivalent. A placement examination is administered, and qualified students are advanced to course 100B or 100C.

**100B. Advanced Grammar II.** Prerequisite: course 100A or equivalent. A placement examination is administered, and qualified students are advanced to course 100C or 103.

**100C. Advanced Grammar III.** Prerequisite: course 100B or equivalent. A placement examination is administered, and qualified students are advanced to course 103.

**103. Advanced Stylistics.** Lecture, three hours. Prerequisite: course 100C or equivalent. Required of all majors, as well as of all candidates for the standard credential in elementary or secondary teaching. Ms. Korol-Ward in charge

**104. Literary Composition.** Lecture, two hours. Prerequisite: course 103 or consent of instructor.

**105. French Linguistics.** Lecture, three hours. Prerequisite: consent of instructor.

**106. Advanced French Phonetics.** Lecture, two hours. Prerequisite: consent of instructor. Ms. Korol-Ward

**107. Contemporary Spoken French.** Discussion, three hours; laboratory, added as needed. Prerequisite: course 103 or consent of instructor.

**108A-108B-108C. Advanced Practical Translation.** Lecture, three hours:

**108A.** Prerequisite: course 103 with a grade of B or consent of instructor. An introduction to the translation of advanced texts of general interest, with work in the theory of translation.

**108B.** Prerequisite: course 108A or consent of instructor. Practice in the 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, with exercises in consecutive and simultaneous translation.

**114A-114B-114C. Survey of French Literature I, II, III.** Prerequisite: course 12 or equivalent. A survey of French literature from the medieval period through the 20th century:

**114A.** Medieval and Renaissance Literature.

**114B.** Literature of the Classical Era (17th and 18th Centuries).

**114C.** Modern Literature (19th and 20th Centuries).

**115A-115D. Medieval French Literature:**

**115A.** The Medieval Epic.

**115B.** The Medieval Romance.



- 115C. The Medieval Theater.  
 115D. Medieval Lyric Poetry.  
**116A-116D. The Renaissance:**  
 116A. Rabelais and His Time.  
 116B. Ronsard and His Time.  
 116C. Montaigne and His Time.  
 116D. Renaissance Theater.

Mr. Bensimon, Mr. Carron

- 117A-117D. The 17th Century:**  
 117A. Corneille and the Baroque.  
 117B. The Classical Theatre: Racine and His Contemporaries.  
 117C. Moliere and the Comedy of the 17th Century.  
 117D. Philosophers, Moralists, and Novelists of the 17th Century. Ms. Melzer  
**118A-118D. The 18th Century:**  
 118A. Comedy and Drama.  
 118B. Voltaire and the Encyclopedists.  
 118C. Diderot and Rousseau.  
 118D. The Novel. Mr. Coleman, Mr. Werner  
**119A-119D. The 19th Century:**  
 119A. Romanticism.  
 119B. The Generation of 1848.  
 119C. Naturalism and Symbolism.  
 119D. The Turn of the Century.

Mr. el Nouty, Mr. Gans

- 120A-120D. The 20th Century:**  
 120A. Gide, Proust, and Their Time.  
 120B. Post-World War I French Writers.  
 120C. Sartre, Camus, and Their Time.  
 120D. Contemporary French Writers.  
 Ms. Kao, Mr. Reid  
**121A-121D. Contemporary Literature of French Expression:**  
 121A. Franco-African Literature.  
 121B. Franco-Canadian Literature.  
 121C. Franco-Helvetian and Franco-Belgian Literature.  
 121D. Franco-Caribbean Literature.

Mr. Coleman, Mr. el Nouty

- 122. French Folklore and Young People's Literature.** Ms. Korol-Ward  
**123. French Popular Literature.** "Romans policiers," "Theatre des boulevards," "chansons-poemes," etc.  
**124. Dramatic Interpretation.** Study of the techniques of stage direction and interpretation of French drama. A survey of some of the different theories and approaches used on the French stage. Each student acts in or directs a scene from a play to be performed under rehearsal conditions. Ms. Korol-Ward  
**132. Contemporary France.** Lecture, three hours. A fourth hour may be required for the viewing of films and other laboratory activities. Ms. Brichant  
**133. French Institutions from the Revolution to the Present.** Lecture, three hours. A fourth hour may be required for the viewing of films and other laboratory activities. Ms. Brichant  
**134. The "Ancien Regime."** Lecture, three hours. A fourth hour may be required for the viewing of films and other laboratory activities. Ms. Brichant  
**135. From Prehistoric Times to the Renaissance.** Lecture, three hours. A fourth hour may be required for the viewing of films and other laboratory activities. Ms. Brichant

**138. Cinema and Literature in Contemporary France.** Lecture, three hours. Additional hours may be required for the viewing of films and other laboratory activities.

**140A-140B-140C. Honors Program in French.** Prerequisites: junior or senior standing in French with a 3.5 GPA in the major, a 3.3 overall average, and consent of department:

**140A.** Honors Seminar in French. Seminar on different aspects of a selected literary genre, such as drama, poetry, the novel, etc.

**140B.** Honors Seminar in French. Seminar on a chosen theme or particular problem of French literature, civilization, or ideas.

**140C.** Honors Tutorial in French. Individual study on a topic related to that of course 140A or 140B leading to an essay to be written under the guidance of a faculty member.

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.

**142. Contemporary French Theater in Translation.** Lecture, two hours.

**143. Modern French Thought.** Lecture, two hours. Contemporary works are read and discussed in translation.

**144A-144B-144C. The French Novel in Translation.** Lecture, two hours. Authors to be studied are announced each quarter.

**145. Topics in French Literature.** To be announced each quarter. May not be taken for major or graduate credit but may be considered as an out-of-department elective for the purpose of satisfying major requirements.

Courses 150 through 157 may be repeated once for credit by consent of the 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 the French Language.**

**158. The Woman in French Literature.** The course explores a selected aspect of the situation of woman in French literature as author, character, symbol, etc.

**160. Studies in the History of Ideas.** Specific themes are chosen and developed which address a particular problem of French literature, civilization, or ideas. May be repeated for credit by consent of major adviser.

**199. Special Studies in French (2 to 8 units).** Prerequisites: junior or senior standing, consent of instructor, and consultation with undergraduate adviser. May be repeated once.

## Graduate Courses

**201A. Theme.** Lecture, three hours. Advanced translation into French.

**201B. Version.** Lecture, three hours. Advanced translation into English.

**201C. La Dissertation Française.** Lecture, three hours. Advanced composition.

**201D. Problems of French Literary Composition.** Lecture, three hours. Practical work of an advanced nature in the expression and presentation of literary research.

**202. Explication de Textes.** Mr. Bensimon

**203A-203B-203C. French Literary Criticism:**

**203A.** Topics in Literary Criticism from Aristotle to Sainte-Beuve.

**203B.** Modern Theories of Criticism.

**203C.** The Techniques of Literary Criticism.

Mr. Coleman, Ms. Kao

**204A. Phonology and Morphology from Vulgar Latin to French Classicism.** The evolution of the French language. Required of candidates for the Ph.D. in Romance Linguistics and Literature who specialize in philology.

**204B. Syntax and Semantics from Vulgar Latin to French Classicism.** The evolution of the French language. Required of candidates for the Ph.D. in Romance Linguistics and Literature who specialize in philology.

**205A-205D. The Intellectual Background of French Literature:**

**205A.** Scholasticism (with Ancient Sources), Humanism.

**205B.** Rationalism, Empiricism, Positivism.

**205C.** Criticism, Idealism, Dialectical Materialism.

**205D.** Phenomenology, Existentialism, Structuralism.

**206. French Linguistics.** Prerequisite: course 105 or Linguistics 100 or equivalent. Discussion of modern linguistic theory in the area of French grammar, syntax, and semantics.

**207. Introduction to Stylistics.** Discussion of the basic stylistic devices of the French language.

**215A-215F. The Medieval Language and Literature.** (Formerly numbered 215A-215E.):

**215A.** Old and Middle French. Course 215A is prerequisite to 215B through 215F. Phonology and morphology of the language. Introduction to Old French texts.

**215B.** The Chanson de geste.

**215C.** The Romance.

**215D.** Medieval Theater.

**215E.** Provençal Poetry.

**215F.** Medieval French Poetry.

**216A-216H. The Renaissance:**

**216A.** Topics in Early 16th-Century French Literature.

**216B.** Topics in the Pleiade.

**216C.** Topics in Late 16th-Century French Literature.

**216D.** Ronsard.

**216E.** Rabelais and Prose Writers.

**216F.** Baroque Poetry.

**216G.** Montaigne.

**216H.** Theater.

Mr. Bensimon, Mr. Carron

**217A-217I. The 17th Century:**

**217A.** Topics in Classical Theater.

**217B.** Topics in Nondramatic Literary Genres.

**217C.** Topics in Classical Prose and Thought.

**217D.** Moliere.

**217E.** Corneille.

**217F.** Racine.

**217G.** The Novel.

**217H.** Moralists.

**217I.** Religious Thought.

Ms. Melzer

**218A-218D. The 18th Century:**

**218A.** Topics in the Early Enlightenment (1680-1747).

**218B.** Topics in the Enlightenment (1748-1765).

**218C.** Topics in the Late Enlightenment (1766-1791).

**218D.** The Theater.

Mr. Coleman, Mr. Werner

**219A-219K. The 19th Century:**

**219A.** Topics in Romanticism.

**219B.** Topics in Realism and Naturalism.

**219C.** Topics in Symbolism.

**219D.** Poetry.

**219E.** The Novel.

**219F.** The Theater.

**219G.** Historians and Critics.

**219H.** Victor Hugo.

**219I.** Balzac.

**219J.** Independent Novelists.

**219K.** Intellectual Trends.

Mr. el Nouty, Mr. Gans

**220A-220P. The 20th Century:**

**220A.** From Symbolism to Surrealism: Selected Topics.

**220B.** From Surrealism to Existentialism: Selected Topics.

- 220C.** From Existentialism to the Present: Selected Topics.
- 220D.** Paul Valéry.
- 220E.** Marcel Proust.
- 220F.** André Gide.
- 220G.** André Malraux.
- 220H.** The Theater.
- 220I.** The Anti-Theater.
- 220J.** The Novel.
- 220K.** The Antinovel.
- 220L.** Surrealism.
- 220M.** Existentialism.
- 220O.** Poetry.
- 220P.** Cinema and Literature. Ms. Kao, Mr. Reid
- 221A-221D. French-African Literature:**
- 221A.** Introduction to the Study of the French-African Literatures.
- 221B.** French-African Literature of Madagascar and Bantu Africa.
- 221C.** French-African Literature of Berbero-Sudanese and Arabo-Islamic Africa.
- 221D.** Franco-Caribbean Literature. Mr. el Nouty

Courses 250A through 260B may be repeated for credit.

- 250A-250B. Studies in Medieval Literature.**
- 251A-251B. Studies in the Renaissance.**  
Mr. Bensimon and the Staff
- 252A-252B. Studies in the Baroque.**  
Mr. Bensimon and the Staff
- 253A-253B. Studies in the 17th Century.**  
Ms. Melzer
- 254A-254B. Studies in the 18th Century.**  
Mr. Coleman, Mr. Werner
- 255A-255B. Studies in the 19th Century.**  
Mr. el Nouty, Mr. Gans
- 256A-256B. Studies in Contemporary Literature.**  
Ms. Kao, Mr. Reid
- 257A-257B. Studies in French-African Literature.**  
Mr. el Nouty and the Staff
- 258A-258B. Studies in Literary Criticism.**  
Mr. Gans and the Staff
- 259A-259B. Studies in Philosophy and Literature.**
- 260A-260B. Studies in the History of Ideas.** Particular problems of French literature and ideas.
- 261. Studies in French Linguistics.**
- 262. Studies in Stylistics.**
- 270. Introduction to Methods of Literary Research.** Prerequisite: graduate standing. Lectures by specialists on aspects of literary research, ranging from bibliography to new critical approaches.
- 310A-310B. The Teaching of French in the Elementary School and at the Junior High Level:**
- 310A.** Lecture, three hours. Prerequisite: consent of instructor. Theory of French teaching in the elementary school and at the junior high level. Required for the standard elementary credential.
- 310B.** Hours to be arranged. Observation of language teaching in the elementary school and at the junior high level. Required for the standard elementary credential.
- 370. The Teaching of French in the Secondary School and at the College Level: Observation.** Prerequisite: course 103. Observation of language teaching in the secondary school and at the college level.  
Ms. Hamel-Baccash
- 372. The Language Laboratory (2 units).** Prerequisite: consent of instructor. New electronic techniques for language instruction. Pedagogical and practical problems of making tapes, installing and organizing a laboratory; control procedures.  
Mr. de Martini

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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.

Ms. Hamel-Baccash

**495. The Teaching of French in the Secondary School and at the College Level.** Prerequisite: course 370. Theory of language teaching.

**596. Directed Individual Studies or Research (2 to 4 units).**

**597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examination (2 to 8 units).** May be repeated for a maximum of sixteen 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 the M.A. degree requirements. S/U grading.

**599. Research for and Preparation of Ph.D. Dissertation (2 to 8 units).**

## Geochemistry

See Earth and Space Sciences

## Geography

1255 Bunche Hall, 825-1071

### Professors

Charles F. Bennett, Ph.D., *Chair*  
C. Rainer Berger, Ph.D.  
William A. V. Clark, Ph.D.  
Gary S. Dunbar, Ph.D.  
Tom L. McKnight, Ph.D.  
Howard J. Nelson, Ph.D.  
Antony R. Orme, Ph.D.  
Jonathan D. Sauer, Ph.D.  
Allen J. Scott, Ph.D.  
Werner H. Terjung, Ph.D.  
Norman J. W. Thrower, Ph.D.  
Hartmut Walter, Ph.D.  
Walter E. Westman, Ph.D.  
Henry J. Bruman, Ph.D., *Emeritus*  
Robert M. Glendinning, Ph.D., *Emeritus*  
Huey L. Kostanick, Ph.D., *Emeritus*  
Richard F. Logan, Ph.D., *Emeritus*  
Clifford H. MacFadden, Ph.D., *Emeritus*  
Joseph E. Spencer, Ph.D., *Emeritus*  
Benjamin E. Thomas, Ph.D., *Emeritus*

### Associate Professors

J. Nicholas Entrikin, Ph.D.  
Gerry A. Hale, Ph.D.  
Christopher L. Salter, Ph.D.  
Stanley W. Trimble, Ph.D.

### Assistant Professors

Susan W. Beatty, Ph.D.  
James H. Johnson, Ph.D.  
Robert McMaster, Ph.D.  
Frank W. Weirich, Ph.D.

## Scope and Objectives

A geographer is concerned with the origins, development, morphology, and processes of the landscapes inherited from nature and with the institutions and patterns associated with the human use of these landscapes. This information helps the geographer to predict the nature and direction of future landscape change and to chart future growth along lines of rational development and careful management of both human and nonhuman resources.

UCLA's Department of Geography, judged sixth best in the nation in a 1982 survey conducted by the Conference Board of the Associated Research Councils, offers training that combines the diversity of a liberal arts education with the technical specialization of a scientific discipline. Curricular offerings and faculty interests encompass the full breadth of geography, including its physical, human, and regional aspects.

The department presents a choice between two undergraduate majors that lead to the Bachelor of Arts degree: (1) the major in geography and (2) the major in analysis and conservation of ecosystems. In both programs the department is committed to quality education concerning the interactions of environment and society. Students are urged to plan their programs and pursue their coursework with close and frequent personal contact with faculty members appropriate to their interests.

Graduate students are expected to demonstrate a broad background in the discipline before they begin to specialize. Specializations are acceptable in almost any subfield and are especially encouraged in physical geography, biogeography, cultural geography, economic geography, urban geography, political geography, historical geography, social geography, population geography, regional geography, cartography, and remote sensing. Master of Arts and Ph.D. degree programs are offered.

## Bachelor of Arts in Geography

Students who select the major in geography may be interested in (1) a broad understanding of the earth's many environments and peoples as part of a liberal education; (2) preparation for employment in areas concerned with environment and society (for example, in environmental impact studies and urban planning); (3) preparation for graduate study in the discipline leading to advanced degrees and professional occupation in both academic and non-academic areas; and (4) preparation for a teaching credential with a specialty in geography and the physical, biological, or social sciences.

Geography majors are encouraged to consult with the undergraduate adviser for the planning of a program suitable to their particular and individual objective.

## Preparation for the Major

**Required:** Geography 1, 2, 3, 4, and Mathematics 50 or equivalent. A mathematics background, such as Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A, is recommended.

## 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. Each year of high school language (but not mathematics) will be accepted as equivalent to one quarter course. A score of 500 on an Educational Testing Service (ETS) language examination will also satisfy this requirement. In mathematics, only Mathematics 2, 3A, 3B, 3C, 5, 31A, 31B, 32A, or equivalent are acceptable. A grade of Passed or C (or better) is required in all courses intended to satisfy this requirement. These courses may be used to meet the breadth requirements of the college. (Note: Students should be aware of the college restrictions on duplication of high school foreign language.)

## The Major

**Required:** A minimum of ten upper division courses in geography taken for a letter grade. In meeting this requirement, you must take three courses from Group I — The Environment; three courses from Group II — Human Geography; one course from Group III — Procedures; two courses from Group IV — Regions; and one elective upper division course in geography. You are encouraged to take more than ten upper division courses.

## Allied Fields

You must develop some competence in one or two allied fields. This program consists of a group of at least four upper division courses selected from at least one but not more than two of the following disciplines: anthropology, atmospheric sciences, biology, chemistry, earth and space sciences, economics, folklore, history, management, mathematics, philosophy, physics, political science, psychology, public health, sociology. Other disciplines require departmental consent in order to be classified as acceptable.

All courses required for the major in geography must be taken for a letter grade. A C average in the major is required for graduation.

## Honors Program

Honors in the geography major may be obtained through procedures described under Geography 199HA-199HB.

## Bachelor of Arts in Analysis and Conservation of Ecosystems

The major in analysis and conservation of ecosystems offers a choice of three plans, each of

which has its foundations within the Department of Geography but is essentially interdisciplinary in scope.

Plan 1 (Environmental Policy) has a social science orientation and is designed primarily for students whose environmental interests focus on policy issues concerning environmental management and conservation.

Plan 2 (Natural Resources) has a biogeographic orientation and is designed for students whose environmental interests focus on the conservation and management of renewable natural resources.

Plan 3 (Environmental Engineering) has a physical geography/technological orientation and is designed primarily for students interested in the physical and technological aspects of environmental conservation and management.

All three plans have certain important features in common. *First*, a high degree of emphasis is placed on student input and student-faculty interaction — particularly with respect to seminars. The faculty is particularly receptive to student enthusiasm. *Second*, you are encouraged to consult with the undergraduate adviser for the planning of a program suitable to your particular and individual objective. *Third*, all courses required for the major, both within and beyond the Geography Department, must be taken for a letter grade. A C average in the major is required for graduation.

## Plan 1 (Environmental Policy)

**Preparation for the Major:** Biology 2, Computer Science 10S, Economics 1, 2, Engineering 11, Geography 1, 2, 5, Mathematics 50. Geography 3, 4, and 6 are recommended. A mathematics background, such as Mathematics 2, 3A, 3B, and 3C, or 31A, 31B, and 32A, is also recommended.

**The Major:** Geography 129, three courses from Group Ia, two courses from Group Ib, one course from Group III.

**Electives:** Six courses from the following: Anthropology 132, 150, 153A, 153B, 167; Architecture and Urban Planning 190; Art 168A, 168B; Communication Studies 120; Economics 110, 111, 170; English 131; Geography: no more than three courses from 100 through 199; one course only from History 195A through M195G; Political Science 141, 142, 167, 170, 191; Psychology M138; Public Health 150, 152, 154, 186; Sociology 120, 125.

## Plan 2 (Natural Resources)

**Preparation for the Major:** Biology 5, 6, 11, Chemistry 11A, Computer Science 10S, Economics 1, Engineering 11, Geography 1, 2, 5, Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A, 50. Economics 2, Geography 3, 4, and 6, and Microbiology 6 are recommended. (Biology 11 is not required for students with credit for 84 or more units prior to Fall Quarter 1982.)

**The Major:** One course from Biology 103, 111, M118; Earth and Space Sciences 150; Geography 129, three courses from Group Ia, two courses from Group Ib, two courses from Group III.

**Electives:** No more than three courses may be taken in any one department to satisfy the elective requirement. Six courses should be selected from the following: Anthropology 132, 167; Biology 103, 111, M118, 120, 122, 125, 131, 135, 147; Civil Engineering 181A, 184A, 184D; Earth and Space Sciences M139; Economics 111, 170; English 131; Geography: no more than three courses from 100 through 199; Materials Science and Engineering M107A; Mechanical, Aerospace, and Nuclear Engineering 180A; Public Health 103, 152, 154. Biology courses taken for elective requirements may not be applied toward the major requirement in biology.

## Plan 3 (Environmental Engineering)

**Preparation for the Major:** Biology 2, Chemistry 11A, Computer Science 10S, Earth and Space Sciences 1 or 100, Economics 1, Engineering 11, Geography 1, 2, 5, Mathematics 31A, 31B, 32A, 33A, 50. Chemistry 11B/11BL, 11C/11CL, Geography 3, 4, 6, Mathematics 33B, Physics 8A, 8B are recommended.

**The Major:** Earth and Space Sciences M139, 150; Geography 129, five courses from Group I (100, 104, 105, 124, and 106 or M127), two courses from Group III, including 160 or 168.

**Electives:** Six courses from the following: Atmospheric Sciences 144, 156; Civil Engineering M105A, M105D, 134A, 181A, 184A, 184B, 184D, 184E; Earth and Space Sciences 105, 111A; Economics 110; English 131; Geography: no more than three courses from 100 through 199; Mathematics 115A, 141A, 141B; Mechanical, Aerospace, and Nuclear Engineering 103, 153A, 180A; Public Health 150; System Science 121A, 124A.

## Honors Program

Honors may be obtained by attainment and maintenance of at least a 3.4 GPA in the major from the beginning of your senior year to graduation and completion of a senior thesis (Geography 196). The thesis is a substantial though not necessarily lengthy contribution to ecosystem analysis that must be submitted no later than early in your final quarter.

## Master of Arts Degree

### Admission

The Department of Geography admits students to the master's program for the Fall, Winter, or Spring Quarter.

The department requires a bachelor's degree or equivalent from an accredited college or university and a grade-point average of 3.3 in courses taken in the junior and senior years

and in the major field. Prospective students are required to pass the Graduate Record Examination Aptitude Test (general section only) with a minimum score of 1100 (verbal and quantitative scores combined) and to provide the department with three letters of evaluation from previous instructors. Students not meeting the grade-point average requirements may be admitted in exceptional cases if their letters of evaluation and GRE scores or other evidence indicate that they have unusual promise. Students may be admitted with subject deficiencies, but such deficiencies will have to be made up.

Non-geography majors entering the geography program from another field will be required to show proficiency in six upper division geography courses (in addition to those required for the M.A.), including three courses from Group I and three courses from Group II, embracing at least one course each from Groups Ia, Ib, IIa, and IIb.

Graduate brochures are available by writing to the Graduate Adviser, Department of Geography, UCLA, Los Angeles, CA 90024.

### Major Fields or Subdisciplines

Graduate students commonly focus their attentions on one or more of the following subdisciplines: geomorphology, climatology, biogeography, cultural, historical, urban, economic, political, cartography, environmental studies.

### Research Tool Requirement

At least one research tool is required for graduate study. A research tool might be a foreign language or a series of mathematics or statistics courses. If a foreign language is approved, the requirement may be fulfilled by taking a series of courses (with a B average), passing the Educational Testing Service (ETS) examination with a score of 500, or taking a special departmental written examination.

### Course Requirements

You must complete at least nine courses, seven of which must be at the graduate level, including the required core courses (Geography 298A, 298B, 298C). Your program must have the approval of your committee. The core courses must be taken at the earliest opportunity.

Only one 500-series course may be applied toward the minimum course requirement for the master's degree and toward the minimum graduate course requirement.

No more than eight units of course 596 may be taken in a given term, and you must also take at least one formal course during that term.

### Thesis Plan

Students planning to continue for a Ph.D. in this department must elect this plan. Under the thesis plan, you 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 informal guidance committee, and later, under the official Graduate Division committee. The thesis proposal should include the exact nature of the problem to be studied, 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.

### Comprehensive Examination Plan

All formal coursework, including the research tool requirement, must be completed before the examination is attempted. The comprehensive examination normally is given in the final two-week period of the quarter in which you complete work for the degree. It will normally consist of three half-day written examinations embracing a general paper and two further papers drawn from the broad divisions of geography. The examination is designed to test for broad grasp of subject, as well as more specialized abilities. In case of failure, you may be reexamined once within one calendar year of the failure. A student who completes the M.A. degree by this plan may not continue for a Ph.D. degree in this department.

### Ph.D. Degree

#### Admission

The Department of Geography admits students to the doctoral program for the Fall, Winter, or Spring Quarter.

The department requires a B+ (3.5) grade-point average or better, plus a strong showing on the Graduate Record Examination Aptitude Test (minimum score of 1100 — verbal and quantitative scores combined), plus three strong letters of recommendation.

An M.A. or M.S. degree with a geography specialty and a 3.5 GPA in graduate studies is recommended. No screening examination is required. However, students entering the doctoral program who have not previously written a master's thesis must, during their first quarter of residence, produce clear evidence of substantive research and writing ability. Students accepted for the Ph.D. program without having officially completed a master's degree must complete the master's degree within two quarters or be terminated as a Ph.D. candidate. Under exceptional circumstances, you may proceed directly toward the Ph.D. degree without taking a master's degree if you (1) are enrolled in the UCLA M.A. program in Geography and have a 4.0 grade-point average; (2) are recommended for a direct Ph.D. by the M.A. guidance committee; (3) have three letters of recommendation in addition to one from the interim adviser or chair; and (4) receive the approval of at least two-thirds of the current faculty in residence by secret ballot.

### Research Tool Requirement

At least one research tool (foreign language, statistics, taxonomy, surveying, laboratory methods, etc.) is required for graduate study. The research tool may be fulfilled by taking a series of courses or, if a foreign language, by passing the Educational Testing Service (ETS) examination with a score of 500, or taking a special departmental written examination. If a series of courses are taken, a B average must be received.

### Course Requirements

You must successfully complete the required core courses (Geography 298A, 298B, 298C) if these have not already been taken at the M.A. level. You are also required to take at least three graduate geography courses in addition to your M.A. coursework (excluding 298A, 298B, 298C, and the 500 series) and three upper division or graduate courses in one or two allied fields to your main field, subject to approval of your committee. The allied field requirement may be met at any time during graduate standing. The core courses must be taken at the earliest opportunity.

### Qualifying Examinations

The written qualifying examinations are administered by your informal guidance committee and consist of five written papers. The examination may be spread over a period of no more than two weeks and should be taken no later than the end of the sixth quarter of the Ph.D. program. In case of failure, you may make one further attempt.

The University Oral Qualifying Examination, conducted by your official Ph.D. dissertation committee, focuses on your dissertation research proposal. Once you have successfully completed the oral qualifying examination, you are eligible for advancement to candidacy. In instances of failure, the oral examination may be repeated once.

The dissertation is the ultimate focus of your Ph.D. program and demonstrates an ability for independent investigation in a selected field of study. The dissertation should be designed and executed in such a way as to make a significant original contribution to geographic research, a contribution that is worthy of publication, in part or as a whole, in a reputable scientific medium.

### Final Oral Examination

A final oral defense of the dissertation may be required by the dissertation committee.

### Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Lower Division Courses

Contact the department office to learn of additional offerings, seminar topics, and specific instructors for the quarter you wish to enroll in courses in geography.

**1. Physical Environment.** Lecture, three hours; laboratory, one hour. A study of the earth's physical environment, with particular reference to the nature and distribution of landforms and climate.

**2. Biogeography.** Lecture, three hours; laboratory, one hour. Prerequisite: course 1 or equivalent. A study of the earth's biosphere, with particular reference to the evolution and distribution of plants, animals, and soils. May not be offered each quarter.

**3. Cultural Geography.** Lecture, three hours; discussion, one hour. A broad examination of the basic cultural variables in the human occupancy of the earth's surface. The approach is ecological, spatial, and historical.

**4. Human Location and Behavior.** Lecture, three hours; laboratory, one hour. Introduction to the basic concepts used in modern urban and economic geography. Emphasis on giving a better understanding of the effects of location on human behavior. Discussion and practical exercises focus on the analysis of problems in the Los Angeles urban environment.

**5. People and the Earth's Ecosystems.** Lecture, three hours; laboratory, one hour. An examination of the historical and contemporary roles of man as a major agent of biological change in the earth's ecosystems.

**6. Maps and Mapping.** Lecture, two hours; laboratory, two hours; independent study, one hour. Introduction to maps and their role in society. Fundamentals of reading and use of both reference and thematic maps. Influence of maps on attitudes toward and images of the geographic environment. Introductory survey of the fields of cartography and remote sensing.

**10. Freshman Seminar in Geography.** Staff-student discussion, three hours; reading period, one hour. Prerequisite: course 1 or 2 or 3 or 4 or 5 as befits the theme. A seminar designed to explore various themes and issues pertinent to environment and people. Seminar topics are advertised in the department during previous quarter.

## Upper Division Courses

### Group I: The Environment

#### (Ia) Basic Environmental Studies

**100. Principles of Geomorphology.** Lecture, three hours; discussion, one hour. Prerequisite: course 1 or Earth and Space Sciences 1 or 100 or consent of instructor. Strongly recommended: introductory physics and chemistry. A study of the 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. Mr. Orme

**101. Coastal Geomorphology.** Lecture, three hours; discussion, one hour. Prerequisite: course 100. A study of the 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. Mr. Orme

**103. Glacial Geomorphology.** Lecture, three hours; reading period, one hour. Prerequisites: course 100 and upper division standing. An introduction to both mountain and continental glaciers, glacial processes, and deposits. Topics include the classification of glaciers, mass balance, glacier motion, erosion processes, glaciofluvial and glaciolacustrine deposition. Mr. Weirich

**104. Climatology.** Lecture, three hours; reading period, one hour. The many relations between climate and the world of man are examined. The objective is to apply basic energy budget concepts to the microclimates of relevance to the ecosystems of agriculture, animals, man, and urban places. Mr. Terjung

**105. Hydrology.** Lecture, three hours; reading period, one hour. Prerequisite: course 1 or equivalent. The 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. Mr. Trimble

**106. Soils.** Lecture, three hours; reading period, one hour. Prerequisites: course 1 or equivalent, Chemistry 11A, or consent of instructor. A study of the origins, evolution, properties, and utilization of soils, with special emphasis on the world's major soil groups.

**107. Soil and Water Conservation.** Lecture, three hours; discussion, one hour. A systematic study of the processes of and the hazards posed by erosion, sedimentation, and pollution and the techniques needed to conserve soil and maintain environmental quality. The scope includes agriculture, forest engineering, mining, and other rural uses of land. Mr. Trimble

**108. World Vegetation.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2, or equivalent, or consent of instructor. Characteristics, distribution, environmental and cultural relationships of the world's principal vegetation patterns. Mr. Sauer

**109. Ecology of Vegetation.** Lecture, three hours; fieldwork, twelve hours total. Prerequisites: course 2, Mathematics 50, Biology 11, or consent of instructor. Principles of plant ecology at the community and ecosystem levels. Emphasis on structure, dynamics, and measurement of the characteristics of terrestrial vegetation. Mr. Westman

**110. Plant Migration.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2, Biology 2, or equivalent, or consent of instructor. Mechanisms of geographic patterning of natural and artificially modified vegetation. Emphasis on range changes for which there is direct fossil or documentary evidence. Mr. Sauer

**112. Animal Geography: Biophysical Aspects.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2, Biology 2. A study of the factors and principles of animal distribution and dispersal on continents and islands of the earth in time and space. Mr. Bennett, Mr. Walter

#### (Ib) Applied Environmental Studies

**116. Origins and Histories of Crop Plants.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2, Biology 2, or equivalent, or consent of instructor. Geographic patterns of domestication and diffusion of useful plants from antiquity to the present, based on detailed case histories of selected species. Mr. Sauer

**117. Animal Geography: Cultural Aspects.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2, 5, Biology 2, or equivalent. A study of human cultural factors influencing animal distributions; the roles of animals in human societies; origins and diffusion of domesticated animals. Mr. Bennett, Mr. Walter

**118. Medical Geography.** Lecture, three hours; reading period, one hour. Prerequisite: course 5 or consent of instructor. An examination of patterns of population-place-disease interactions and some effects of change and development on disease etiology and problems of health care.

**119. Agricultural and Pastoral Ecosystems.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2, 5, 116, and 112 or 117, or equivalent. Recommended: courses 120 and 121. Students who do not meet the prerequisites should not attempt this course. A geographical, ecological, and historical analysis of the world's agricultural and pastoral systems. Emphasis on energy flows, nutrient cycles, and ecological and social problems associated with the various systems. Mr. Bennett

**120. Conservation of Resources: North America.** Prerequisites: courses 1, 2, or equivalent, or upper division standing. An analysis of the basic principles and problems associated with the conservation of natural resources in the United States and Canada. Mr. Bennett, Mr. McKnight, Mr. Trimble

**121. Conservation of Resources: Underdeveloped World.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2, 120, or equivalent, and upper division standing. An analysis of the principles and problems of the conservation of natural resources of the underdeveloped world. Mr. Bennett

**122. Man and Environment in Africa.** Lecture, three hours; discussion, one hour. Prerequisites: courses 1, 2, 5. An analysis of the unique ecosystems of tropical and subtropical Africa, with respect to traditional and modern human impacts on vegetation, wildlife, and other natural resources. A discussion of development goals in relation to socioeconomic policies and Africa's environmental heritage. Mr. Walter

**123. Bioresource Management.** Lecture, three hours; discussion, one hour. Prerequisites: courses 2, 5. Recommended: introductory statistics (i.e., Mathematics 50 or Economics 40). Theory and practice of the management and conservation of bioresources. Introduction to wildlife management, endangered species conservation, and the design and maintenance of National Parks and ecological reserves. Mr. Walter

**124. Environmental Impact Analysis.** Lecture, three hours; discussion, one hour. Prerequisites: at least two courses from 100 through M127 and Mathematics 50. Recommended: courses 2, 5, 128. Introduction to the interdisciplinary analysis of local and regional impacts on environmental systems. Includes evaluation of state and federal concepts for the analysis of environmental impact. Mr. Westman

**125. Marine Ecosystems.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 2, 5, Biology 5, 7, or equivalent. Description and analysis of the principal marine ecosystems, with particular emphasis on those which are chiefly affected by human activity. Detailed evaluation of the ecological and conservation problems associated with human use of marine ecosystems.

**M127. Soil, Plants, and Society.** (Same as Biology M127.) Lecture, three hours; field trip. Prerequisites: Chemistry 11A, 11B, 11C, or equivalent, or consent of instructor. A general treatment of soil development and morphology and the physical and chemical properties of soils as they relate to plant growth and distribution; soil resources, management, conservation, and cultural aspects. Soil profiles examined on the field trip are used to explain developmental phenomena. Mr. Lunt

**128. The World's Ecosystems: Problems and Issues.** Lecture, three hours; discussion, one hour. Prerequisite: course 120 or 121. Principal objectives are (1) to identify past, current, and projected problems associated with man-induced ecological disturbances and (2) to identify and evaluate the societal and biophysical factors which have contributed to the identified ecological disequilibria.

**129. Problems of the Environment: Seminar.** Lecture, three hours; reading period, two hours. Prerequisites: senior standing, four courses from Group I. Highly recommended: Mathematics 152A. Limited enrollment. Qualitative-quantitative analysis of problems associated with rational protection and use of selected environmental systems (urban, rural, forest, desert, coastal, water, soil, or others).

### Group II: Human Geography

#### (IIa) Cultural and Historical Geography

**130. Geographical Discovery and Exploration.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A survey of the history of exploration, from earliest times to modern, with emphasis on the period from Marco Polo to the present. Mr. Dunbar, Mr. Thrower

**132. Cultural Geography of the Premodern World.** Lecture, three hours; reading period, one hour. Prerequisite: course 3 or equivalent. An evolutionary and structural approach to the sociocultural geography of the earth prior to the rise of the modern world system. Mr. Hale, Mr. Salter

**133. Cultural Geography of the Modern World.** Lecture, three hours; reading period, one hour. Prerequisite: course 3 or equivalent. An evolutionary and structural approach to the sociocultural geography of the modern world system, with particular emphasis on the structure and functioning of its core, semi-periphery, and periphery. Mr. Hale, Mr. Salter

**135. Reading the Cultural Landscape: Perspectives and Processes.** Lecture, three hours; reading period, one hour. Prerequisite: upper division standing or consent of instructor. Understanding personal and societal environmental preferences begins with analysis of the landscape. The course deals with attitudes toward the cultural or humanized landscape, methods of landscape analysis, problem landscapes, and environments of the future through lectures, readings, and field study. Mr. Salter

**136. Historical Geography of the United States.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A study of the evolution of the cultural landscapes of the area that is now the United States. Examination of past geographies and of geographical change through time. Mr. Dunbar

**140. Political Geography.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. The principles of political geography as developed through regional studies of political phenomena throughout the world. Current problems in domestic and international affairs are considered.

**142. Population Geography.** Lecture, three hours; reading period, one hour. A study of the 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.

#### (IIb) Economic and Urban Geography

**145. Spatial Organization of Society.** Lecture, three hours; reading period, one hour. Prerequisites: course 4, elementary statistics, or consent of instructor. A study of the spatial structure of society as an expression of human decisions. Emphasis on the processes affecting city size and distribution, the internal structure of cities, rural land use, and industrial location. Mr. Entrikin

**146. Human Spatial Behavior.** Lecture, three hours; reading period, one hour. Prerequisites: course 4, elementary statistics, or consent of instructor. A study of human behavior within the spatial context. Regularities in patterns of trade, consumer behavior, migration, mobility, communication, and diffusion. Mr. Entrikin

**148. Economic Geography.** Lecture, three hours; reading period, one hour. Prerequisite: course 4 or consent of instructor. Geographical aspects of economic production and growth. The general theory of the space-economy. Land-use processes. Location of industry. Regional development. Mr. Scott

**149. Transportation Geography.** Prerequisite: course 3 or 4 or upper division standing. A study of the geographical aspects of transportation, focusing on the characteristics and functions of the various modes and on the complexities of intra-urban transport. Mr. McKnight

**150. Urban Geography.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. An analysis of the development, functions, spatial patterns, and geographic problems of American cities. Mr. Clark, Mr. Entrikin, Mr. Nelson

**151. Historical Geography of Cities.** Prerequisites: courses 3, 4, or equivalent, or upper division standing. A survey of the diffusion and growth of cities in Western civilization. Two themes are emphasized, the development of city systems and the evolution of urban internal spatial structure. Mr. Entrikin

**152. World Cities.** Lecture, three hours; reading period, one hour. Prerequisite: upper division standing. A discussion of the growth and structure of selected cities as illustrations of the processes of urbanization in different countries and societies. Topics include rural to urban migration, cities as centers of power, spatial organization, and the tendency to megalopolitanization. Mr. Clark, Mr. Entrikin

**156. Metropolitan Los Angeles.** Lecture, three hours; reading period, one hour. Prerequisite: upper division standing. A study of the origins, growth processes, internal structure and pattern, interactions, environmental and spatial problems of the Los Angeles metropolitan area. Mr. Nelson

**159. Problems in Human Geography.** Staff-student discussion, three hours; reading period, one hour. Prerequisites: two courses from Group II, senior standing. Limited to 15 students. A seminar course in which students carry out intensive research projects. Designed as a "capstone" to courses in this group, the subjects of research grow out of prior work.

#### Group III: Procedures

**160. Field and Laboratory Analysis in Geomorphology.** (Formerly numbered 160, 162.) Laboratory/fieldwork, eight hours. Prerequisites: course 100 and two courses from 101, 103, 105, 106, 107. Limited to geography and ecosystems majors, with enrollment priority to seniors, then to juniors. Students must pre-enroll in the department during the prior quarter. Examination of field and laboratory procedures and intellectual concepts used in the observation, measurement, analysis, and interpretation of landforms, constituent materials, and relevant processes. Mr. Orme, Mr. Trimble, Mr. Weirich

**161. Field Analysis: Cultural Geography.** Fieldwork, once a week from 8 to 5. Prerequisites: courses 1, 3, two upper division courses in geography, consent of instructor. Enrollment priority to geography majors. The observation, analysis, and mapping of landscape phenomena of human origin. Techniques of data collection are examined for such topics as settlement form and pattern, environmental change, historical and demographic change, and land use. Mr. Salter

**163. Field and Laboratory Analysis: Biogeography.** Laboratory/fieldwork, eight hours. Prerequisites: courses 2, 5, or equivalent, two courses from 106, 108, 109, 112. Limited to geography and ecosystems majors, with enrollment priority to ecosystems majors. Examination of field and laboratory procedures and intellectual concepts used in the observation, measurement, analysis, and interpretation of phenomena pertinent to biogeography and interrelated human influences.

**166. Map Analysis.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. The analysis of maps, with the aim of deducing the physical, cultural, and economic aspects of the region portrayed, including such elements as geomorphic history, hydrography, settlement history, forms of economic livelihood, transportation problems, and toponymy.

**167. Cartography (6 units).** Lecture, two hours; laboratory, six hours; independent study, three hours. Prerequisites: courses 1, 3, or equivalent, or consent of instructor. Survey of the field of cartography. Includes theory and construction of map projections, compilation procedures, principles of generalization, symbolization, terrain representation, lettering, drafting and scribing, and map reproduction methods. Mr. McMaster

**168. Computer Cartography.** Lecture, two hours; laboratory, two hours; independent study, two hours. Prerequisites: course 167, Computer Science 10F or 10S, and consent of instructor. Theory and methods of mapping quantitative information with a computer. Includes problems of acquiring and processing machine-readable map data and representing them as point symbols and surfaces. Mr. McMaster

**169. The Earth from Above.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, 4, or consent of instructor. The course examines the interface between cartography and remote sensing. By means of a wide variety of imagery from maps and satellite photos, different landscapes are analyzed and explained. Mr. Thrower

**171. Quantitative Analysis.** Lecture, three hours; laboratory, one hour. Prerequisite: Mathematics 50 or consent of instructor. An introduction to the methods of measurement and interpretation of geographic distributions and associations. Mr. Clark

**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. Mr. Berger

#### Group IV: Regions

**180. North America.** Prerequisites: courses 1, 3, or equivalent, or upper division standing. Delineation and analysis of the principal geographic regions of the United States and Canada. Mr. McKnight, Mr. Nelson

**181. Middle America.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A study of the geographic factors, physical and cultural, that are basic to an understanding of the historical development of Middle America and of the contemporary economic and cultural geography of Mexico and the countries of Central America and the West Indies. Mr. Bennett

**182A. Spanish South America.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A study of the geographic factors, physical and cultural, that are basic to an understanding of the historical development of Spanish South America and of the contemporary economic and cultural geography of the individual Spanish-speaking countries. Mr. Bennett

**182B. Brazil.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A study of the geographic factors, physical and cultural, that are basic to an understanding of the historical development of Portuguese South America and of the contemporary economic and cultural geography of Brazil. Mr. Bennett

**183. Europe.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A study of geographic conditions and their relation to economic, social, and political problems in Europe. Mr. Thrower

**184. Soviet Union.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A study of geographic conditions and their relation to economic, social, and political problems in the Soviet Union.

**185. South and Southeast Asia.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A regional synthesis with varying emphasis on the people of South or Southeast Asia in their physical, biotic, and cultural environment and its dynamic transformation.



**186. Contemporary China.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. A systematic geographic analysis of the elements of landscape, resources, population, and socioeconomic characteristics of the People's Republic of China. The course goal is comprehension of the 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. Mr. Salter

**187. Middle East.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. An analysis of the 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. Mr. Hale

**188. Northern Africa.** Lecture, three hours; reading period, one hour. Prerequisites: courses 1, 3, or equivalent, or upper division standing. An analysis of the economic, social, and political geography of the area including Mediterranean Africa, the Sahara, the Sudanic belt, and the eastern Horn. Emphasis on geographical themes and problems during historical and modern times. Mr. Hale

**189. Middle and Southern Africa.** Prerequisites: courses 1, 3, or equivalent, or upper division standing. The regions of Africa south of the Sahara (middle and southern Africa) in terms of physical features, human settlement, economic production, and political patterns. Mr. Hale

**190. Australasia.** Prerequisites: courses 1, 3, or equivalent, or upper division standing. A regional synthesis of the physical and cultural features which characterize Australia, New Zealand, and the islands of the South Pacific. Mr. McKnight

**191. California.** Prerequisites: courses 1, 3, or equivalent, or upper division standing. A systematic and regional treatment of the geography of California, including the physical, cultural, and economic aspects and detailed studies of the various regions. Mr. McKnight

## Special Studies

**196. Senior Thesis in Ecosystems Analysis.** Hours to be arranged. Prerequisites: courses 129, 160 or 163, and senior standing. Preparation and data collection and analysis for a senior thesis under the guidance and assistance of a faculty sponsor. (F,W,Sp)

**199. Special Study (2 to 8 units).** Hours to be arranged. Prerequisites: senior standing and consent of instructor.

**199HA-199HB. Honors in Geography I and II.** Hours to be arranged. Prerequisites: a 3.25 overall GPA and at least five upper division geography courses with a 3.5 GPA. **199HA** is an independent study course taught by a team of two faculty members who assist the student with bibliographic research and/or field research on a topic of mutual interest to the student and the faculty members. Successful completion of course 199HA entails the preparation of a detailed bibliography and outline (to be evaluated by the two faculty members) for the writing of a substantial paper during course 199HB. If that work is determined to be of A quality, the student is allowed to continue in the honors program. If that work is graded B or below, credit is awarded, but the student is not permitted to continue in the honors program. **199HB** is devoted to the writing of the substantial paper researched and outlined in course 199HA. It also is evaluated by the two faculty members. If the paper is determined to be of A quality, the student graduates with honors in geography. If the paper is graded B or below, credit is awarded, but the student does not receive honors.

## Graduate Courses

### Group I: The Environment

**200. History and Paradigms of Geomorphology.** Lecture, two hours; discussion, one hour; reading period, eight hours. Prerequisites: course 100 and 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. Each theme is viewed in its contemporary milieu. Mr. Orme

**201. Coastal Geomorphology Seminar.** Discussion, three hours; reading period, five hours; fieldwork. Prerequisites: courses 100 and 101. Discussion of selected topics pertaining to geomorphic processes and responses observable in the coastal zone. May be repeated for credit. Mr. Orme

**202. Fluvial Geomorphology Seminar.** Discussion, three hours; reading period, five hours; fieldwork. Prerequisites: courses 100 and 105, or Civil Engineering 184A. Discussion of selected topics pertaining to the action of running water in shaping the physical landscape. May be repeated for credit. Mr. Trimble

**203. Glacial Geomorphology Seminar.** Discussion, three hours; reading period, five hours; fieldwork. Prerequisites: courses 100 and 103. Discussion of selected topics pertaining to the action of snow and ice in arctic and alpine environments. May be repeated for credit. Mr. Weirich

**204A-204B-204C. Advanced Climatology.** Lecture, three hours; laboratory, one hour. Prerequisites: course 104, first year of calculus, acquaintance with Fortran IV, or consent of instructor. Courses must be taken sequentially. An introduction to the 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. Mr. Terjung

**205. Seminar: Climatology.** Discussion, three hours; reading period, one hour. Prerequisites: courses 204A-204B-204C or equivalent and consent of instructor. Selected topics. May be repeated for credit. Mr. Terjung

**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. An intensive review and analysis of physical and cultural factors influencing plant distributions. Mr. Sauer

**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. An intensive review and analysis of biophysical and cultural factors influencing animal distributions. Mr. Bennett, Mr. Walter

**213. Seminar: Biogeography.** Discussion, three hours; reading period, two hours. Prerequisites: course 208 or 212 or equivalent and consent of instructor. Research projects related to or growing out of course 208 or 212. May be repeated for credit.

**215. Seminar: Quaternary Studies.** 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. An analysis of the changing environment of the Quaternary period. May be repeated for credit. Mr. Orme

**218. Advanced Medical Geography.** Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisite: course 118 or consent of instructor. An in-depth study of selected topics in medical geography and an intense review of recent research.

**223. Seminar: Humid Tropics.** Discussion, three hours; reading period, two hours. Prerequisite: consent of instructor. 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. Mr. Bennett

**227. Water Quality Management.** Discussion, three hours; reading period, one hour. Prerequisites: graduate standing and consent of instructor. Discussion of the basic technical, regional planning, and public policy issues in water quality management. Mr. Westman

**229. Seminar: Man and Environment.** Discussion, three hours; reading period, two hours. Prerequisite: course 128 or equivalent. An 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. Mr. Walter

### Group II: Human Geography

**232. Advanced Cultural Geography.** Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisite: course 132 or 133 or equivalent or consent of instructor. Lectures and discussions around specific aspects of the development of cultural landscape in different geographic environments. Mr. Hale, Mr. Salter

**233. Seminar: Cultural Geography.** Discussion, three hours; reading period, two hours. Prerequisites: course 232 or 236 or equivalent and consent of instructor. Discussions center around particular topics in cultural geography. Content may vary from year to year. May be repeated for credit.

**236. Advanced Historical Geography of the United States.** Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisites: course 136 and consent of instructor. Some major themes in American historical geography. Mr. Dunbar

**237. Seminar: Historical Geography.** Discussion, three hours; reading period, two hours. Prerequisites: course 236 and consent of instructor. Theory and practice of historical geography in North America and Europe. May be repeated for credit. Mr. Dunbar

**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 the theories and principles of political geography and German geopolitics. Selected regions are 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 and 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. A 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. Prerequisites: courses 145 and 146, or consent of instructor. Methods of locational analysis as applied to problems of regional growth and development.

**249. Seminar: Economic Geography.** Discussion, three hours; reading period, two hours. Prerequisites: course 248 or equivalent and 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. Prerequisites: courses 145 and 146, or consent of instructor. A general study of the hierarchy of urban places, including diffusion within the urban hierarchy and theories to account for the location and size distribution of cities. Mr. Clark

**251. Seminar: Urban Geography.** Discussion, three hours; reading period, two hours. Prerequisites: course 250 or equivalent and 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. Prerequisites: courses 145 and 146, or consent of instructor. A study of the links between urban social and urban spatial structure, emphasizing urban residential land use, social areas of the city, and accessibility and urban form. Mr. Entrikin

**254. Migration and Residential Mobility.** Lecture, two hours; discussion, one hour; reading period, one hour. Prerequisite: consent of instructor. The description and modeling of national, regional, and intra-urban migration. Mr. Clark

### Group III: Procedures

**260. Advanced Field and Laboratory Analysis in Geomorphology.** Laboratory/fieldwork, ten 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. Mr. Orme, Mr. Trimble, Mr. Weirich

**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. Mr. Salter

**262. Advanced Field Analysis: Biogeography (8 units).** Fieldwork, ten 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. A survey of the literature of geography, with special reference to periodicals. Intended for beginning graduate students. Mr. Dunbar

**267. Advanced Cartography.** Laboratory, three hours; independent study, two hours. Prerequisite: course 167 or equivalent or consent of instructor. Advanced work in the theory and practical application of modern cartographic principles. Special emphasis on terrain representation, quantitative and computer mapping, scribing, color separation, and reproduction of maps. Mr. McMaster, Mr. Thrower

**269. Remote Sensing of Environment.** Laboratory, three hours; independent study, two hours. Prerequisite: course 167 or equivalent or consent of instructor. The study of aerial photographs and other remote sensing images as tools for geographical research. Particular attention on the analysis of landscapes and the interpretation of interrelationships of individual features in their physical and cultural complex. Mr. Thrower

**M272. Spatial Statistics.** (Same as Architecture and Urban Planning M215B.) Lecture, two hours; discussion, one hour; laboratory, one hour. Prerequisites: course 171 or Mathematics 50 and consent of instructor. Specific techniques useful in the analysis of spatial distributions, including both point and areal patterns and emphasizing spatial descriptive statistics, probability models of spatial distributions, and statistical surfaces. Mr. Clark

**273. Seminar: Model Building for Spatial Analysis.** Discussion, three hours. Prerequisite: consent of instructor. Discussions of the philosophy and methodology of model building. The focus is on the problems unique to models of spatial structure. Individual research topics are emphasized. May be repeated for credit. Mr. Clark

**M278. Dating Techniques in Environmental Sciences and Archaeology.** (Same as Anthropology M216.) Lecture, three hours. Prerequisite: consent of instructor. A 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. Mr. Berger

### Group IV: 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. Mr. McKnight, Mr. Nelson

**281. Middle America.** Prerequisites: course 181 and consent of instructor. Mr. Bennett

**282. South America.** Prerequisites: course 182A or 182B and consent of instructor. Mr. Bennett

**283. Europe.** Prerequisites: course 183 and consent of instructor. Mr. Thrower

**284. Soviet Union.** Prerequisites: course 184 and consent of instructor.

**285. South and Southeast Asia.** Prerequisites: course 185 and consent of instructor.

**286. Eastern Asia.** Prerequisites: course 186 and consent of instructor. Mr. Salter

**287. Middle East.** Prerequisites: course 187 and consent of instructor. Mr. Hale

**288. Northern Africa.** Prerequisites: course 188 and consent of instructor. Mr. Hale

**289. Middle and Southern Africa.** Prerequisites: course 189 and consent of instructor. Mr. Hale

**290. Australia.** Prerequisites: course 190 and consent of instructor. Mr. McKnight

**291. The Arid Lands.** Prerequisites: courses 104, 106, 108, 116, 120, and 148, or equivalent, and consent of instructor. An investigation of the physical and cultural complexes of the world's arid regions. Salient factors include climate, landforms, water, soils, natural vegetation, and the 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. A lecture series devoted to a specific region at the discretion of the instructor. May be repeated for credit.

**295. Seminar: Geographic Thought.** Discussion, three hours; reading period, two hours. Prerequisites: graduate standing, consent of instructor. Discussion and study of topics significant to the growth of the modern philosophy of geography. Mr. Entrikin

### Core Courses

**298A. Philosophical Issues in Geographical Inquiry.** (Formerly numbered 200A.) Lecture, three hours. Prerequisite: consent of instructor. A discussion of geographical research within the context of philosophical debates concerning the nature of scientific inquiry. Mr. Entrikin

**298B. History of Modern Geography.** (Formerly numbered 200B.) Lecture, three hours; reading period, one hour. Prerequisite: consent of instructor. The evolution of the field of geography in the 19th and 20th centuries, with emphasis on the professionalization of geography and its emergence as a modern academic discipline. Mr. Dunbar

**298C. Statistical Methods for Geographic Research.** (Formerly numbered 200C.) Lecture, three hours. Prerequisite: course 171 or equivalent. The use of linear models, discriminant functions, and factor analysis to analyze problems in geography. Mr. Clark

### Special Studies

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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 of 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.

**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 M.A. Comprehensive Examination or Ph.D. Qualifying Examination (2 to 8 units).** Prerequisite: consent of instructor. Special individual 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.

## Geology

See Earth and Space Sciences

## Geophysics and Space Physics

See Earth and Space Sciences

# Germanic Languages

302 Royce Hall, 825-3955

## Professors

Ehrhard Bahr, Ph.D. (*German*), *Chair*  
 Franz H. Bäuml, Ph.D. (*German*)  
 Wolfgang Nehring, Ph.D. (*German*)  
 Eli Sobel, Ph.D. (*German*)  
 Alexander Stephan, Ph.D. (*German*)  
 Hans Wagener, Ph.D. (*German*)  
 Donald J. Ward, Ph.D. (*German and Folklore*)  
 Terence H. Wilbur, Ph.D. (*Germanic Linguistics and Philology*)  
 Gustave Otto Arlt, Ph.D., LL.D., *Emeritus*  
 Carl William Hagge, Ph.D., *Emeritus*  
 Wayland D. Hand, Ph.D., *Emeritus*  
 William J. Mulloy, Ph.D., *Emeritus*  
 Victor A. Oswald, Jr., Ph.D., *Emeritus*  
 Erik Wahlgren, Ph.D., *Emeritus*

## Associate Professors

Janet R. Hadda, Ph.D. (*Yiddish*)  
 Robert S. Kirsner, Ph.D. (*Dutch and Afrikaans*)  
 Vern W. Robinson, Ph.D., *Emeritus*

## Assistant Professors

Jesse L. Byock, Ph.D. (*Old Norse*)  
 T. Craig Christy, Ph.D. (*Germanic Linguistics and Philology*)  
 Dieter Jedan, Ph.D. (*German*)  
 Kathleen Komar, Ph.D. (*German*)  
 Steven D. Martinson, Ph.D. (*German*)

## Lecturer

Margot Michels, Ph.D. (*German*)

## Adjunct Professor

Marianna D. Birnbaum, Ph.D. (*Hungarian*)

## 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 a 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 German and Scandinavian and a Ph.D. in Germanic Languages with a variety of specialized fields available. The department also offers courses in Dutch-Flemish and Afrikaans, Hungarian, Old Norse studies, and Yiddish, and a program in Finno-Ugric languages and literatures.

## Bachelor of Arts in German

The undergraduate program in German is comprised of lower division courses in the Ger-

man 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

**Required:** German 1, 2, 3, 4, 5, 6, or equivalent. Course 1 is not open for credit to students who have completed two years of high school German or equivalent with grades of C or better. Students who have completed two semesters of college German 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

**Required:** Fifteen upper division German courses as follows: Group I — German 100A or 100B or 100C, 108A, 108B, 129; Group II — four courses from 100A or 100B or 100C (whichever has not been taken to satisfy the Group I requirement), 101A, 101B, 101C, 121A, 128, 134; Group III — three courses from 103, 105, 106, 107, 137; Group IV — four courses from 121B, 122, 123, 124, 126, 127, 130, 132. 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.

## Departmental Honors

To qualify for departmental honors, you must earn in your junior and senior years a grade-point average of 3.6 or better in German courses and a 3.3 overall GPA, and complete German 195 with a grade of A. Contact the departmental honors adviser if you are eligible.

## Teaching Credential in German

Students desiring the general secondary credential in German should consult the Graduate School of Education (201 Moore Hall) and the Department of Germanic Languages.

## Graduate Study

The Department of Germanic Languages offers the advanced degree candidate a scope and variety of studies unique among departments of German in the United States. The department provides programs of study leading to the M.A. in German, the M.A. in Scandinavian, and the Ph.D. in Germanic Languages, with specialized fields in all areas of

German literature, Germanic philology and linguistics, Germanic folklore, Scandinavian literature and philology, Netherlandic languages and literatures, and Yiddish studies. In addition, the department offers a program in Finno-Ugric languages and literatures. This wide range of studies within the Germanic languages and cultures enables the Ph.D. candidate to acquire competence in several specialized fields.

For brochures and other information, contact the Department of Germanic Languages, UCLA, Los Angeles, CA 90024.

## Master of Arts in German

### Admission

A bachelor's degree in German with a minimum grade-point average of 3.0 from an accredited U.S. institution or the equivalent is required. Candidates deficient in their undergraduate preparation may be admitted but will be required to take remedial courses, as recommended by the graduate adviser. A placement examination in German language or literature may be required. Three letters of recommendation are also required.

### Major Fields or Subdisciplines

There are two M.A. plans that differ with respect to the course requirements and the comprehensive examinations. Plan A is for students who plan to terminate their studies with the M.A. and a teaching 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.

### Foreign Language Requirement

Before advancement to candidacy for the M.A., you must pass the Graduate School Foreign Language Test reading examination in French with a score of 500 or better. The test is administered through University Extension at the beginning of each quarter, including the summer.

### 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 (or equivalent) 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.

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.

## Thesis Plan

If you choose this plan, a thesis committee will be 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 you must pass a two-hour oral examination in the field of the thesis, as well as in the fields listed below under the comprehensive examination plan.

## 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. The M.A. examination consists of two written examinations of three hours each, followed by a one-hour oral examination.

Part 1 of the written examinations covers various fields. In the case of Plan A, the origin and development of the standard German language and contemporary standards of the German language are included. In the case of Plan B, bibliography, Middle High German, and the history of the German language are included. Part 2 of the written examinations covers major works and authors of German literature from earliest times to the present and concepts of literary criticism. After you have taken the written examination, the M.A. committee decides whether you may proceed to the oral examination. If you fail the oral examination, the M.A. committee decides whether you must repeat the entire examination or only the oral portion.

If you apply for an M.A. under Plan B (to proceed toward the Ph.D.) and are awarded a terminal M.A., you may repeat the examinations if you choose not to have the M.A. degree officially awarded before the reexamination.

## Ph.D. in Germanic Languages

### 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 will make appropriate study or course recommendations. All deficiencies must be removed prior to application for admission to candidacy for the qualifying examinations. Applicants without an M.A. in German (e.g., with an M.A. in Comparative Literature or in Linguistics) will be required to pass the written part of the M.A. comprehensive examination before beginning doctoral work in the department. Applicants with an M.A. in Scandinavian who wish to major in Scandinavian literature and philology must take a formal minor in German. Three letters of recommendation are also required.

## Major and Minor Fields of Study

At the beginning of work toward the Ph.D. or as soon as possible thereafter, you must declare your major and minor fields. The field in which you plan to present a dissertation will be the major field and will be selected from the four fields in which the degree is offered: (1) German literature, (2) Germanic philology and linguistics, (3) Scandinavian literature and philology, or (4) Germanic folklore.

If you choose German literature as your major field, you must choose one of the following: (1) German literature before 1700 or (2) German literature from 1700 to the present.

The minor field may be selected 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 your major field is German literature, you may not choose options 1 through 3. The following minor may be substituted (unless you are a Scandinavian major): four graduate courses (excluding German 217 and all literature courses taken prior to the M.A. degree) in one of the other fields in which the degree is offered or four appropriate courses in Yiddish or Dutch-Flemish and Afrikaans or Old Norse studies.

## Foreign Language Requirement

In addition to French, a second language examination is required either in a modern Scandinavian language or in Dutch-Flemish and Afrikaans or in Latin or in Yiddish (substitution of another language may be approved by petition).

## Course Requirements

There are no course requirements *per se* for the Ph.D. in Germanic Languages. However, the following rules apply: (1) you 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; (3) you may choose to fulfill minor field requirements by taking specific courses rather than being tested in the minor field on the Ph.D. qualifying examinations.

## Qualifying Examinations

The written examinations consist of three parts unless you opt for the course minor, in which case it will consist of two parts: (1) first half of major field (three hours); (2) second half of major field (three hours); (3) minor field (three hours).

You may take the written examinations in the major or minor field any time after admission to the doctoral program and fulfillment of all prerequisite requirements. The major field exami-

nations are given within a period of seven school days and completed no later than four weeks before instruction ends in a given quarter.

If you have opted for the formal minor and fail the written examination, you are not permitted to switch to the course minor.

Written examinations may be repeated in case of failure. A repetition of the major examination includes both parts of the major field. When you have completed the written examinations successfully, the chair of the guidance committee will schedule the University Oral Qualifying Examination to be administered by the doctoral committee as soon as possible after completion of the written examinations.

Advancement to candidacy will take place when you have (1) passed the graduate reading examination in French; (2) passed a departmental reading examination either in a modern Scandinavian language or in Dutch-Flemish and Afrikaans or in Latin or in Yiddish (or an approved substitute language); (3) successfully completed three seminars; (4) passed the qualifying examinations. When you pass the oral examination, you advance to candidacy and proceed to the writing of the dissertation.

## Final Oral Examination

After your completed dissertation is accepted by the certifying members of the doctoral committee, you may be required to defend the dissertation in a final oral examination.

## Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## German

### Lower Division Courses

No credit will be 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 by consent of the instructor.

**1. Elementary German.** Lecture, five hours; laboratory, one hour. Not open for credit to students who have completed two years of high school German or equivalent with grades of C or better. Students are, however, credited with four units toward the minimum progress requirement. Mr. Jedan

**1G. Elementary German for Graduate Students.** Provides preparation for the Graduate Division foreign language reading requirement. May not be applied toward degree requirements. S/U grading. Mr. Christy, Mr. Wilbur

**2. Elementary German.** Lecture, five hours; laboratory, one hour. Prerequisite: course 1. Not open for credit to students who have completed two years of high school German or equivalent with grades of C or better. Students are, however, credited with four units toward the minimum progress requirement. Mr. Jedan

**2G. Elementary German for Graduate Students.** Provides preparation for the Graduate Division foreign language reading requirement. May not be applied toward degree requirements. S/U grading.

Mr. Christy, Mr. Wilbur

**3. Elementary German.** Lecture, five hours; laboratory, one hour. Prerequisite: course 2 or two years of high school German.

Mr. Jedan

**4. Intermediate German.** Lecture, five hours. Prerequisite: course 3 or three years of high school German.

Mr. Jedan

**5. Intermediate German.** Prerequisite: course 4 or four years of high school German.

Mr. Jedan

**6. Intermediate German.** Prerequisite: course 5 or equivalent.

Mr. Jedan

**12. German Conversation (2 units).** Prerequisite: course 1 or one year of high school German. The course utilizes German language teaching films; students have the opportunity to practice spoken German in small groups.

Mr. Jedan

**14. Intermediate Conversation (2 units).** Prerequisite: course 3 or three years of high school German. Students have the opportunity to practice spoken German in small groups.

Mr. Jedan

**95. Freshman Seminar.** 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 119G, 119J, 121A, 121B) 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.** A study of the development of German civilization and institutions from the earliest times to 1700. Study of German culture as represented in its literature, art, music, and architecture. Lectures, discussions, and readings in English; knowledge of German is not required.

Mr. Bäuml, Mr. Sobel, Mr. Wagener, Mr. Ward

**100B. Modern German Civilization and Culture from 1700 to 1919.** A study of the development of German civilization and institutions from 1700 to 1919. Study of German culture as represented in its literature, art, music, and architecture. Lectures, discussions, and readings in English; knowledge of German is not required.

Mr. Sobel, Mr. Wagener

**100C. German Civilization and Culture in the 20th Century.** A study of the development of German culture and institutions from 1919 to the present, emphasizing developments in literature, the arts, and architecture. Lectures, discussions, and readings in English; knowledge of German is not required.

Mr. Bahr, Mr. Stephan, Mr. Wagener

**101A. Introduction to German Poetry.** Close analysis of representative examples of German lyric poetry from early as well as modern literary periods, including a systematic consideration of poetic conventions and forms, diction, tone, imagery, symbolism, and metrics. Course should be taken at the beginning of literary studies.

Mr. Bahr, Ms. Komar, Mr. Wagener

**101B. Introduction to German Drama.** Analysis of selected examples of drama (e.g., tragedy, comedy, one-act play, lyric drama, lyric theater, etc.), including a systematic introduction to dramatic forms, techniques, and theories. Texts are selected from modern literature as well as from other periods. Course should be taken at the beginning of literary studies.

Mr. Bahr, Mr. Martinson, Mr. Nehring

**101C. Introduction to German Narrative Prose.** Analysis of significant examples of narrative prose (e.g., short story, novella, novel, fairy tale, etc.), including a systematic introduction to narrative forms, techniques, styles. Texts are selected from modern literature as well as from older periods. Course should be taken at the beginning of literary studies.

Mr. Bahr, Ms. Komar, Mr. Nehring, Mr. Stephan

**102. Business German.** Prerequisites: courses 1, 2, 3, 4, 5, 6. German for business studies: exercises in German business correspondence, terminology of export and import, readings and translations in the field of business German.

Ms. Michels

**103. Introduction to German Enlightenment, Sturm und Drang, and Classicism.** 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.

Mr. Bahr, Mr. Martinson

**105. Introduction to 19th-Century German Literature.** Reading and analysis of selected works from Romanticism to realism.

Ms. Komar, Mr. Nehring

**106. Introduction to Modern Literature.** Analysis of selected works of the period from 1890 to 1945.

Mr. Nehring, Mr. Wagener

**107. Introduction to Contemporary Literature.** Analysis of selected works of the period from 1945 to the present time.

Mr. Stephan

**108A. Composition and Conversation.**

Mr. Christy, Ms. Michels

**108B. Composition and Conversation.** Prerequisite: course 108A or consent of instructor.

Mr. Christy, Ms. Michels

### Courses Not Open for Credit to Majors or Graduate Students in German

**119A. Older German Literature in Translation.** (Formerly numbered 121A.) Analysis in English of works of German literature from the medieval period to baroque. May not be applied toward completion of the major in German.

Mr. Bäuml, Mr. Sobel, Mr. Ward

**119B. Classical German Literature in Translation.** (Formerly numbered 121B.) Analysis in English of works of the classical period. May not be applied toward completion of the major in German.

Mr. Bahr, Mr. Martinson

**119C. 19th-Century German Literature in Translation.** (Formerly numbered 121C.) Readings and lectures in English on selected 19th-century authors. May not be applied toward completion of the major in German.

Ms. Komar, Mr. Nehring

**119D. Modern German Literature in Translation — Narrative Prose I.** (Formerly numbered 121D.) Readings, lectures, and discussions in English on selected modern authors, including Mann, Kafka, Hesse, and Rilke. May not be applied toward completion of the major in German.

Mr. Nehring, Mr. Stephan, Mr. Wagener

**119E. Modern German Literature in Translation — Narrative Prose II.** (Formerly numbered 121E.) Readings, lectures, and discussions in English on post-1945 narrative prose. May not be applied toward completion of the major in German.

Mr. Stephan, Mr. Wagener

**119F. Modern German Literature in Translation — Drama and Lyrics.** (Formerly numbered 121F.) Readings, lectures, and discussions in English on modern German drama and lyric poetry. May not be applied toward completion of the major in German.

Mr. Stephan, Mr. Wagener

**119G. Modern German Jewish Literature in Translation.** (Formerly numbered 121G.) Readings and lectures in English on selected authors, including Mendelssohn, Heine, Schnitzler, Kraus, Kafka, Feuchtwanger, Anne Frank, Nelly Sachs. May not be applied toward completion of the major in German.

Ms. Hadda

**119J. The Faust Tradition from the Renaissance to the Modern Age.** (Formerly numbered 121J.) Readings and discussions in English of the Faust theme and tradition in European literature and intellectual history, including the chapbook of *Doctor Faustus*, Christopher Marlowe's and Goethe's Faust dramas, as well as Thomas Mann's novel, *Doctor Faustus: The Life of the German Composer Adrian Leverkühn*. May not be applied toward completion of the major in German.

Mr. Bahr, Mr. Martinson

### Courses Open for Credit to Majors, Nonmajors, and Graduate Students in German

**121A. Special Problems in Literature.** (Formerly numbered 121H.) Prerequisite: upper division standing. Varying topics of current importance and immediate relevance to literary study. The course is designed to introduce the student to contemporary trends in literary study and is predominantly concerned with topics related to German literature and criticism. Lectures in English.

**121B. The German Film in Cultural Context.** (Formerly numbered 121I.) A survey of various aspects of the German film in relationship to literary, artistic, and political directions of the times, with emphasis on the film as a separate mode of artistic expression.

Mr. Stephan

**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.

Mr. Bäuml, Mr. Sobel, Mr. Wagener, Mr. Ward

**123. Goethe.** Prerequisites: courses 100A or 100B and 103, or consent of instructor. Reading and discussion of representative works (except *Faust*) from Goethe's early period to his maturity and old age.

Mr. Bahr, Mr. Martinson

**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. Hoffmann, and Eichendorff.

Ms. Komar, Mr. Nehring

**126. Advanced Study in Modern Literature.** Prerequisites: courses 100A, 100B, or 100C, 106, or consent of instructor. Reading and analysis of a wide range of the literature from 1890 to 1945.

Mr. Wagener

**127. Advanced Study in Contemporary Literature.** Prerequisites: courses 100A, 100B, or 100C, 107, or consent of instructor. Analysis of a wide range of German literature from 1945 to the present.

Mr. Stephan

**128. Advanced Composition, Grammar, and Conversation.** Prerequisites: courses 108A and 108B, or consent of instructor.

Mr. Christy, Ms. Michels

**129. German Phonetics.** Study of the articulatory basis of the sounds of German and practice in standard pronunciation.

Mr. Christy

**130. Methodology of Literary Criticism.** Prerequisite: senior standing or consent of instructor. Introduction to the methodology of literary criticism, including a 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.

Mr. Bahr, Mr. Bäuml, Mr. Martinson

**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.

Mr. Bahr, Mr. Martinson

**134. German Folklore.** A survey of the various genres of German folklore.

Mr. Ward

**137. Language and Linguistics.** (Formerly numbered 117.) Prerequisites: courses 100A or 100B and 108A. Introduction to the historical development of the German language; theories and methods of linguistics. Mr. Christy

**195. Senior Thesis Course.** Extensive reading, research, and writing of senior thesis. May be used for writing honors thesis.

**199A-199ZZ. Special Studies (2 to 4 units).** Prerequisite: consent of instructor. To be arranged with faculty member who will direct the study (course section to be identified by a two-letter code using initials of sponsoring instructor — see department for code). A course of independent study 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 of German Literary History.** Study of the various kinds of bibliographies, reference works, handbooks, lexica, series publications, journals, literary histories, and related materials necessary for advanced studies and research in literary and philological problems. Practical exercises in the analysis and compilation of bibliographical data.

Mr. Sobel, Mr. Ward

**201C. Theories of Literary Criticism.** Analysis and discussion of the foundations of literary criticism and current theories such as hermeneutics, positivism, psychology, sociology, intellectual history (*Geistesgeschichte*), New Criticism, Marxist Criticism, Russian and Czech Formalism, structuralism, and semiotics.

Mr. Bahr, Mr. Bäuml

**202A. Middle High German.** Introduction to the grammar, syntax, and vocabulary of the Middle High German language. Exercises in reading Middle High German literary works are combined with a study of the sociocultural contexts in which the works of the medieval period were produced and performed.

Mr. Bäuml

**202B. Readings in Middle High German Literature.** Students do extensive reading of the literary monuments of the medieval period in Germany. The course also introduces students to the cultural and literary history of the Middle Ages.

Mr. Bäuml, Mr. Ward

**203A. The Courtly Epic.** An analysis of the major epics of the medieval period in Germany, such as Hartmann's *Erec* and *Iwein*, Wolfram's *Parzival*, and Gottfried's *Tristan*. A study of courtly society, as well as an introduction to methods of interpretation and analysis.

Mr. Bäuml

**203B. The Courtly Lyric.** The medieval songs of courtly performers, beginning with Der von Kurenberg and ending with Johannes von Hadlaub, are analyzed. Study of the sociocultural context in which the songs were produced and performed, and an introduction to methods of interpretation and analysis.

Mr. Bäuml, Mr. Ward

**203C. The Heroic Epic.** A survey of German heroic literature, beginning with the *Hildebrandslied* and including such works as the *Nibelungenlied*, *Kudrun*, and the Dietrich epics. Methods of analysis and interpretation, as well as an analysis of thematic and formal characteristics of the different epics.

Mr. Bäuml, Mr. Ward

**204. Renaissance and Reformation Literature.** The literature of the 15th and 16th centuries, including an introduction to and the study of the early New High German language. Selected readings from the works of such authors as Sebastian Brant, Martin Luther, Hans Sachs, and Johann Fischart.

Mr. Sobel, Mr. Wagener, Mr. Ward

**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.

Mr. Sobel, Mr. Wagener

**206A. Enlightenment and Sentimentalism.** Study of representative authors of the earlier part of the 18th century from Gottsched through Lessing, including such authors as Leibniz, Thomasius, Wolff, Bodmer and Breitinger, Johann Elias Schlegel, Haller, Brockes, Anacreontic poets, Gessner, Klopstock, Mendelssohn, and Wieland.

Mr. Bahr, Mr. Martinson

**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.

Mr. Bahr, Mr. Martinson

**207A. Classicism: Goethe.** Selected topics from the 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.

Mr. Bahr

**207B. Classicism: Schiller.** Selected topics from the 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*.

Mr. Bahr, Mr. Martinson

**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.

Ms. Komar, Mr. Nehring

**209A. 19th-Century Lyrics.** The 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.

Ms. Komar, Mr. Nehring

**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 *Volks theater*.

Ms. Komar, Mr. Nehring

**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, Goethe, Keller, C.F. Meyer, Fontane, and the early naturalists.

Ms. Komar, Mr. Nehring

**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, Rilke.

Mr. Wagener

**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.

Mr. Stephan, Mr. Wagener

**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.

Ms. Komar, Mr. Wagener

**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, are analyzed and placed in the context of literary, cultural, and political trends.

Mr. Stephan

**211B. Contemporary Lyrics and Drama.** A 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, are analyzed and placed in the context of literary, cultural, and political trends.

Mr. Stephan

**217. History of the German Language.** A historical survey of the development of the standard literary German language from the time of Indo-European unity through proto-Germanic, West Germanic, the medieval period, the Reformation, the baroque period, and the Enlightenment until its final codification at the end of the 19th century.

Mr. Christy, Mr. Wilbur

**230. Survey of Germanic Philology.** A systematic survey of the major problems in the field of Germanic linguistics: the origin and historical diffusion of the Germanic dialects and their classification; problems in the evolution of the nominal and verbal morphology of the various dialects; problems in the phonological evolution of the various dialects.

Mr. Wilbur

**231. Gothic.** A systematic study of the phonology and grammar of the Gothic language, with readings in Wulfila's translation of the Bible and an introduction to the history of the Goths and their place in the development of modern Europe.

Mr. Wilbur

**232. Old High German.** An introduction to the earliest phases of German literature, with extensive readings in the major documents of that period (750-1050). Emphasis on the grammatical interpretation of these documents and the identification of the dialects used in their composition.

Mr. Christy, Mr. Wilbur

**233. Old Saxon.** An introduction to the study of the earliest documents in Old Low German. Readings in the *Heliand* and the study of the *Old Saxon Genesis*.

Mr. Christy, Mr. Wilbur

**240A. Theories, Methods, and History of Germanic Folklore.** The history of Germanic folklore studied in the context of European cultural history. The evolution of the theories and methods of the discipline as developed by Herder, the Grimms, Bolte, Meier, Naumann, Bausinger, and others.

Mr. Ward

**240B. Folk Song and Ballad.** Analysis of the poetic and musical aspects of German folk songs and ballads. Study of thematic and formalistic evolution of text and music, combined with an introduction to the theories and methods of analysis of folk music and the function of folk song in its social context.

Mr. Ward

**240C. Oral Prose Genres.** Study of the thematic and formal characteristics of legends, folktales, jests, proverbs, and riddles. The role of popular narrative in its sociocultural context in German history and a survey of methods of analysis of narratives, texts, and contexts.

Mr. Ward

**245B. Germanic Antiquities.** Survey of the prehistory and early history of Germanic civilization from the Bronze Age to the end of the migrations on the basis of archaeological, historic, and philological evidence. Methods of comparative ethnography, religion, and myth are used to interpret the evidence.

Mr. Ward

**251. Seminar in Syntax and Phonology of German.** Topics chosen from the field of contemporary German syntax and phonology according to the needs and preparation of the students enrolled (e.g., *Dialektgeographie*, generative phonology, generative syntax, *Valenztheorie*, *Texttheorie*).

Mr. Wilbur

**252. Seminar in Historical and Comparative German Linguistics.** Topics chosen from the field of historical German phonology and syntax according to the needs and preparation of the students enrolled (e.g., the West Germanic problem and the classification of the Germanic languages, the development of Germanic verbal and nominal morphology, proto-Germanic syntax).

Mr. Wilbur

**253. Seminar in Medieval Literature.** Selected topics in medieval literature, with emphasis on problems in literary analysis and the applicability of various types of analysis to medieval texts.

Mr. Bäuml, Mr. Ward



**254. Seminar in 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 the methods of literary history to the literature of the 15th and 16th centuries. Mr. Sobel, Mr. Ward

**255. Seminar in 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 the application of methods of literary analysis pertinent to the literature of this age. Mr. Sobel, Mr. Wagener

**256. Seminar in 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. Mr. Bahr, Mr. Martinson

**257. Seminar in the 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. Mr. Bahr

**258. Seminar in Romanticism.** Discussion of a specific author or topic from the Romantic period, possibly in close connection with course 208. Critical review of secondary works. Ms. Komar, Mr. Nehring

**259. Seminar in 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. Ms. Komar, Mr. Nehring

**260. Seminar in the Modern Period.** Seminar on a selected genre, author, or theme of 20th-century German literature prior to 1945. Mr. Bahr, Mr. Nehring, Mr. Wagener

**261. Seminar in Contemporary Literature.** Study of selected works, a specific author, genre, period, or topic from 1945 to the present. Texts are analyzed and placed in the context of literary, cultural, and political trends. Mr. Stephan

**262. Seminar in Germanic Folklore.** Detailed research on individual aspects of Germanic folklore. The topic selected generally is drawn from the course in the German 240 series that preceded the seminar. Emphasis on problems of theory and method. Mr. Ward

**263. Seminar in Theories of Literature.** Specialization in literary theories, such as *Rezeptionsästhetik*, Neo-Marxist Criticism, New Criticism, psychology or sociology of literature, structuralism, semiology, and hermeneutics. Mr. Bahr, Mr. Bäuml

**370. The Teaching of German in Secondary Schools.** Lecture, three hours; discussion periods. Prerequisite: graduate standing or consent of instructor. Required of all candidates for the general secondary credential in German.

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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. Preparation for College Teaching of German (2 units each).** Study of problems and methods in teaching German on the college level. Theory and classroom practice, observation, and critical evaluation. May not be applied toward the M.A. course requirements. In Progress and 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 a two-letter code using initials of sponsoring instructor — see department for code). May be repeated once; however, only one course in the 500 series may be applied toward the M.A. graduate course requirement. S/U grading.

**597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examination.** To be arranged with faculty member who will direct the study (course section to be identified by a two-letter code using initials of sponsoring instructor — see department for code). May be taken only once before and only once after the M.A. degree; only one course in the 500 series may be applied toward the 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 a two-letter code using initials of sponsoring instructor — see department for code). Only one course in the 500 series may be applied toward the 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 a two-letter code using initials of sponsoring instructor — see department for code). May be repeated. S/U grading.

## Dutch-Flemish and Afrikaans

### Upper Division Courses

**101A. Elementary Dutch-Flemish.** Mr. Kirsner

**101B. Elementary Afrikaans.** Mr. Kirsner

**101C. Intermediate Dutch-Flemish.** Prerequisite: course 101A or equivalent. Mr. Kirsner

**101D. Intermediate Readings in Dutch-Flemish.** Prerequisite: course 101C or equivalent. Mr. Kirsner

**101E. Intermediate Readings in Afrikaans.** Prerequisite: course 101B. Mr. Kirsner

**112. Dutch, Flemish, Afrikaans Literature in Translation.** Readings and analysis of selected works in translation from Dutch, Flemish, and Afrikaans literature. Mr. Kirsner

**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 an appreciation of the scope of 20th-century Neerlandistiek. Mr. Kirsner

**131. Introduction to Modern Dutch Literature.** Prerequisite: course 101D or 120. Analysis of selected works of the literature of the Netherlands and Flemish Belgium from the symbolist *Beweging van Tachtig* of the 1880s to the present. Mr. Kirsner

**135. Introduction to Afrikaans Literature.** Prerequisite: course 101E or equivalent. Analysis of selected works from the founding of the *Genootskap van Regte Afrikaners* in 1875 to the present time. Mr. Kirsner

**199. Special Studies in Dutch-Flemish and Afrikaans (2 to 4 units).** Mr. Kirsner

### Graduate Courses

**234. The Structure of Modern Standard Dutch.** A detailed examination, from contrasting theoretical viewpoints, of central problems in Dutch phonology, grammar, and semantics, with attention to related phenomena in German, English, and Afrikaans. Course is equivalent to Linguistics 225.

Mr. Kirsner

**596. Directed Individual Study or Research in Dutch-Flemish and Afrikaans.** To be arranged with faculty member who will direct the study or research (course section to be identified by a two-letter code using initials of sponsoring instructor — see department for code). May be repeated once. S/U grading. Mr. Kirsner

## Hungarian

### Upper Division Courses

**101A. Elementary Hungarian.** Introduction to grammar and reading exercises, with emphasis on the spoken language. Ms. Birnbaum

**101B. Elementary Hungarian.** Prerequisite: course 101A or equivalent. Grammatical exercises, conversation, and reading of texts. Ms. Birnbaum

**101C. Elementary Hungarian.** Prerequisite: course 101B or equivalent. Conversation and readings in literary texts. Ms. Birnbaum

**101D. Advanced Hungarian.** Prerequisites: courses 101A, 101B, 101C, or equivalent. Grammar, conversation, vocabulary building. Ms. Birnbaum

**101E. Advanced Hungarian.** Prerequisites: courses 101A-101D or equivalent. Conversation, reading, and discussion of literary texts. Ms. Birnbaum

**101F. Advanced Hungarian.** Prerequisites: courses 101A-101E or equivalent. Conversation and review of Hungarian grammar from a typological point of view. Ms. Birnbaum

**120A-120B. Readings in Hungarian.** Prerequisite: course 101C or equivalent. Selections of Hungarian prose and poetry read in the original. Ms. Birnbaum

**120C. Readings in Hungarian Literature.** Prerequisite: reading knowledge of Hungarian and course 101C or equivalent. Selections of Hungarian prose and poetry read in the original. Discussion is conducted in Hungarian. Ms. Birnbaum

**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. Main trends and contacts with other literatures are surveyed. Ms. Birnbaum

**130. Hungarian Civilization and Culture.** A study of Hungarian civilization and institutions from the earliest times to the present. Study of Hungarian culture as represented in its arts (literature, fine arts, music). Ms. Birnbaum

**M135. Hungarian Folklore and Mythology.** (Same as Folklore M128.) A general course for the student in folklore and mythology, with emphasis on types of folklore and varieties of folklore research. Ms. Birnbaum

**M136. Folklore and Mythology of the Ugric Peoples.** (Same as Folklore M129.) Survey of the traditions of the smaller Ugric nationalities (Voguls, Ostyaks, etc.). Ms. Birnbaum

**199. Special Studies in Hungarian (2 to 4 units).** Prerequisite: consent of instructor. A course of independent study 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. Ms. Birnbaum

## Old Norse Studies

### Lower Division Course

**40. The Heroic Journey in Northern Myth, Legend, and Epic.** (Formerly numbered Scandinavian 40.) A comparison of the journeys of heroes. Readings in mythology, legend, folktales, and epic, including the *Nibelungenlied*, the *Volsunga saga*, the *Eddas*, and *Beowulf*. Cultural and historic backgrounds to the texts are considered. All readings are in English. Mr. Byock

## Upper Division Courses

**139. The Saga.** Lecture, three hours. The sagas are the largest extant medieval prose literature. Texts are read in English, with selections from the different types of Icelandic sagas. Consideration is given to the history and culture that produced this literature.

Mr. Byock

**140. Viking Civilization and Literature.** (Formerly numbered Scandinavian 141.) Readings in the history, society, and culture of the early Scandinavians. All texts are in English and include Old Norse sagas, *Eddas*, and early ballad literature.

Mr. Byock

**C145. Old Norse Literature and Society.** Lecture, three hours. Readings in primary texts in conjunction with the critical literature. Specific issues in medieval Scandinavian studies are considered. May be repeated for credit. Concurrently scheduled with course C223.

Mr. Byock

**151. Elementary Old Norse.** (Formerly numbered Scandinavian 151.) Introduction to the grammar and pronunciation of Old Norse. Selected readings from the sagas and the *Prose Edda*.

Mr. Byock

**152. Intermediate Old Norse.** (Formerly numbered Scandinavian 152.) Prerequisite: course 151 or equivalent. Continued grammar, pronunciation, and readings from the *Eddas* and the sagas of the Icelanders, the Norwegian kings, and the legendary heroes.

Mr. Byock

**153. Modern Icelandic.** (Formerly numbered Scandinavian 153.) Prerequisite: course 152 or equivalent. Grammar, readings, and conversation.

Mr. Byock

**199. Special Studies in Old Norse (2 or 4 units).** Prerequisite: consent of instructor. A course of independent study 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.

Mr. Byock

## Graduate Courses

**221. Advanced Old Norse Prose.** Prerequisite: course 152 or equivalent. Readings of major saga texts. Also read are secondary sources which bear on specific issues in Old Norse literature and medieval Scandinavian history.

Mr. Byock

**222. Advanced Old Norse Poetry.** Prerequisite: course 152 or equivalent. Readings of mythological and heroic poems from the *Poetic Edda*. Secondary sources used where appropriate.

Mr. Byock

**C223. Old Norse Literature and Society.** Lecture, three hours. Critical issues in medieval Scandinavian studies. May be repeated for credit. Concurrently scheduled with course C145.

Mr. Byock

**245A. Germanic and Scandinavian Mythology.** Lecture, three hours. A study of Northern myth and religion through a close reading of the Eddic texts and secondary sources.

Mr. Byock

**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 a two-letter code using initials of sponsoring instructor — see department for code). May be repeated once; however, only one course in the 500 series may be applied toward the M.A. graduate course requirement. S/U grading.

Mr. Byock

## Yiddish

## Lower Division Courses

**1. Elementary Yiddish.** Lecture, five hours. Introduction to grammar; instruction in listening, speaking, reading, and writing skills.

Ms. Hadda

**2. Elementary Yiddish.** Lecture, five hours. Prerequisite: course 1 or equivalent.

Ms. Hadda

**3. Elementary Yiddish.** Lecture, five hours. Prerequisite: course 2 or equivalent.

Ms. Hadda

## Upper Division Courses

**104. Intermediate Yiddish.** Lecture, five hours. Prerequisite: course 3 or equivalent. Grammatical exercises, reading and linguistic analysis of texts, conversation.

Ms. Hadda

**121A. 20th-Century Yiddish Poetry in English Translation.** Prerequisite: upper division standing or consent of instructor. Readings in 20th-century Yiddish poetry and drama.

Ms. Hadda

**121B. 20th-Century Yiddish Prose and Drama in English Translation.** Prerequisite: upper division standing or consent of instructor. Readings in 20th-century Yiddish prose.

Ms. Hadda

**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.

Ms. Hadda

**131A. Modern Yiddish Poetry.** Prerequisite: course 104 or consent of instructor. Readings in modern Yiddish poetry.

Ms. Hadda

**131B. Modern Yiddish Prose and Drama.** Prerequisite: course 104 or consent of instructor. Readings in modern Yiddish prose and drama.

Ms. Hadda

**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.

Ms. Hadda

**199. Special Studies in Yiddish (2 to 4 units).** Prerequisite: consent of instructor. A course of independent study 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.

Ms. Hadda

## Graduate Course

**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 a two-letter code using initials of sponsoring instructor — see department for code). May be repeated once. S/U grading.

Ms. Hadda

## Scandinavian Section

332 Royce Hall, 825-2432

### Professors

Ross P. Shideler, Ph.D.  
Kenneth G. Chapman, Ph.D., *Emeritus*  
Erik Wahlgren, Ph.D., *Emeritus*

### Associate Professors

James R. Massengale, Ph.D., *Vice Chair*  
Mary Kay Norseng, Ph.D.

### Adjunct Lecturers

Inkeri A. Rank, M.A., M.Ed. (*Finnish Studies*)  
Jules L. Zentner, Ph.D.

## Scope and Objectives

Scandinavia consists of five Northern European countries: Denmark, Finland, Iceland, Norway, and Sweden. Together with the Faroe Islands and Greenland, these countries form a geographic bridge between the American and European continents and a political bridge between the West and Eastern Europe. For all

students of literature, history, and social planning, 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, as well as a strong set of course offerings in Finnish language, literature, and folklore. 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 will 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, 25, and 30, or equivalent.

### The Major

*Required:* Twelve upper division courses in Scandinavian, including 105 and 106 or 110 for two quarters and 141, 142, 143. As an option, three upper division courses in a related field may be taken. These three courses must be 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.

## Master of Arts in Scandinavian

### 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. If you are deficient in the undergraduate major, you 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.

For a brochure describing the program and requirements, write to the Scandinavian Section, 332 Royce Hall, UCLA, Los Angeles, CA 90024.

### Major Fields or Subdisciplines

There are no clear major fields or subdisciplines in the M.A. program, but students emphasize one modern language and literature area in Danish, Norwegian, or Swedish.

## Foreign Language Requirement

Reading knowledge of French or German is required (in addition, of course, to a knowledge of the Scandinavian languages). You must pass the Graduate School Foreign Language Test reading examination in French or German with a score of 500 or better or must pass at least one upper division course in French or German.

## 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 on 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, will be required of all candidates for the M.A. degree. The examination is given whenever you have completed the course requirements and feel prepared to be examined on both the coursework and the reading list.

The comprehensive examination is both written and oral; students who fail may be reexamined once without petitioning.

*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 will be 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 by consent of the instructor.

Native speakers of Norwegian, Swedish, or Danish may not enroll in any language course (including courses 105, 106, 110) in the Scandinavian Section, except by petition in writing to the section. Non-Scandinavian students with a knowledge of one of these Scandinavian languages may not take courses in the others except by petition in writing. Petitions must include a description of the student's linguistic background and the reason for wanting to take the language course in question.

### 1. Elementary Swedish.

**2. Elementary Swedish.** Prerequisite: course 1 or equivalent.

**3. Elementary Swedish.** Prerequisite: course 2 or equivalent.

**4. Intermediate Swedish.** Prerequisite: course 3 or equivalent.

**5. Intermediate Swedish.** Prerequisite: course 4 or equivalent.

**11. Elementary Norwegian.** Ms. Norseng

**12. Elementary Norwegian.** Prerequisite: course 11 or equivalent. Ms. Norseng

**13. Elementary Norwegian.** Prerequisite: course 12 or equivalent. Ms. Norseng

**14. Intermediate Norwegian.** Prerequisite: course 13 or equivalent. Ms. Norseng

**15. Intermediate Norwegian.** Prerequisite: course 14 or equivalent. Ms. Norseng

**21. Elementary Danish.** Mr. Massengale

**22. Elementary Danish.** Prerequisite: course 21 or equivalent. Mr. Massengale

**23. Elementary Danish.** Prerequisite: course 22 or equivalent. Mr. Massengale

**24. Intermediate Danish.** Prerequisite: course 23 or equivalent. Mr. Massengale

**25. Intermediate Danish.** Prerequisite: course 24 or equivalent. Mr. Massengale

**30. Intermediate Danish, Norwegian, and Swedish.** Prerequisite: course 5 or 15 or 25 or equivalent. Readings in Danish, Norwegian, and Swedish. Written and oral exercises. P/NP, S/U, or letter grading.

**50. Introduction to Scandinavian Literature.** Lecture, three hours. Intended for students in general and for those wishing to prepare for more advanced and specialized studies of Scandinavian literature and culture. Selected works from the literature of Norway, Sweden, Denmark, Iceland, and Finland, ranging from myth, national epic, saga, and folktale through modern novel, poem, play, short story, and film script, are read in English and critically discussed.

## Upper Division Courses

**105. Advanced Swedish.** Prerequisite: course 30 or equivalent. Readings, composition, and conversation in Swedish.

**106. Advanced Swedish.** Prerequisite: course 105 or equivalent. Readings, composition, and conversation in Swedish.

**110. Advanced Danish and Norwegian.** Prerequisite: course 30 or equivalent. Readings, composition, and conversation in Danish and Norwegian. May be repeated once for credit.

**M123A. Finnish Folklore and Mythology.** (Same as Folklore M123A.) The methods and results of Finnish folklore studies and the mythic traditions of the Finns. Special attention to the oral epic, beliefs, and legends. Ms. Rank

**M123B. Finnish Folk Song and Ballad.** (Same as Folklore M123B.) Course M123A is not prerequisite to M123B. A survey of Finnish balladry and folk song, with attention to historical development, ethnic background, and poetic and musical values. Ms. Rank

**M125. Folklore and Mythology of the Lapps.** (Same as Folklore M125.) Survey of Lappish beliefs, customs, and various genres of oral tradition, including tales, legends, songs, and music. Attention also to the material manifestations of Lappish culture: arts and crafts, textiles, costume, folk technology. Ms. Rank

**130. Elementary Finnish.** Introduction to pronunciation and grammar. Ms. Rank

**131. Intermediate Finnish.** Prerequisite: course 130 or equivalent. Grammatical exercises and readings. Ms. Rank

**132. Advanced Finnish.** Prerequisite: course 131 or equivalent. Readings, composition, and conversation. Ms. Rank

**138. Survey of Finnish Literature.** Intended for students in general and comparative literature, as well as students interested in Finnish studies. Readings and discussions of selected works from the literature of Finland in the 19th and 20th centuries. Conducted in English; knowledge of Finnish is not required.

Ms. Rank

**141. Backgrounds of Scandinavian Literature.** Prerequisite for Scandinavian majors: course 30 or equivalent; for nonmajors: knowledge of a Scandinavian language is not required. Readings and discussions of representative texts selected from the literature of the medieval, Renaissance, baroque, and Enlightenment periods. Mr. Massengale

**142. Scandinavian Literature of the 19th Century.** Prerequisite for Scandinavian majors: course 30 or equivalent; for nonmajors: knowledge of a Scandinavian language is not required. Readings and discussions of selected works from the literature of Scandinavia in the 19th century. Mr. Massengale, Ms. Norseng

**143. Modern Scandinavian Literature.** Prerequisite for Scandinavian majors: course 30 or equivalent; for nonmajors: knowledge of a Scandinavian language is not required. Readings and discussions of selected works of modern Scandinavian literature. Mr. Massengale, Ms. Norseng, Mr. Shideler

**C144. Henrik Ibsen.** Prerequisite for Scandinavian majors: course 30 or equivalent; for nonmajors: knowledge of a Scandinavian language is not required. Readings and discussions of selected plays by Henrik Ibsen. May be concurrently scheduled with course C251. Ms. Norseng

**C145. August Strindberg.** Prerequisite for Scandinavian majors: course 30 or equivalent; for nonmajors: knowledge of a Scandinavian language is not required. Readings and discussions of selected plays by August Strindberg. May be concurrently scheduled with course C252. Mr. Massengale, Mr. Shideler

**C146. Søren Kierkegaard.** Prerequisite for Scandinavian majors: course 30 or equivalent; for nonmajors: knowledge of a Scandinavian language is not required. Readings and discussions of selected works by Søren Kierkegaard. May be concurrently scheduled with course C253. Mr. Massengale

**C147. Knut Hamsun.** Prerequisite for Scandinavian majors: course 30 or equivalent; for nonmajors: knowledge of a Scandinavian language is not required. Readings and discussions of selected works by Knut Hamsun. May be concurrently scheduled with course C254. Ms. Norseng

**C180. Literature and Scandinavian Society.** Knowledge of one Scandinavian language may be required. Discussion of selected aspects of Scandinavian society based on readings of the contemporary literature as well as other documentary material. May be repeated for credit (as determined by undergraduate adviser) with topic change. May be concurrently scheduled with course C263. Mr. Massengale, Ms. Norseng, Mr. Shideler

**181. Contemporary Swedish Literature.** Prerequisite: reading knowledge of a Scandinavian language. Reading and analysis of selected texts by major 20th-century Swedish authors. The course covers not only specific novelists, playwrights, and poets, but places them within a social and historical milieu. Mr. Shideler

**C182. The Theory of the Scandinavian Novel.** Prerequisite for Scandinavian majors: course 30 or equivalent; for nonmajors: knowledge of a Scandinavian language is not required. The course examines the predominant structures of the novel, the Scandinavian novel in particular, starting with its beginnings, concentrating on the rise of the novel in the 19th century, and following the novel's evolution in the 20th century. The works of such writers as Kierkegaard, Andersen, Almqvist, Jacobsen, Hamsun, and Hansen are central to the course. May be concurrently scheduled with course C264. Ms. Norseng, Mr. Shideler

**183. The Scandinavian Ballads.** Lecture, three hours. Prerequisite: reading knowledge of a Scandinavian language. A survey of Danish, Norwegian, and Swedish ballads, with attention to their historical development, poetic content, and musical/poetic structure. Mr. Massengale

**190. Honors Course in Scandinavian.** Prerequisites: senior standing with a minimum 3.0 GPA in the major and consent of the 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).** Prerequisites: senior or graduate standing and consent of instructor. To be arranged with faculty member who will direct the study (course section to be identified by a two-letter code using initials of sponsoring instructor — see section for code). A course of independent study 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.** Prerequisites: advanced knowledge of Norwegian and consent of instructor. Intensive study of the works of Henrik Ibsen. May be concurrently scheduled with course C144.

Ms. Norseng

**C252. August Strindberg.** Prerequisites: advanced knowledge of Swedish and consent of instructor. Intensive study of the works of August Strindberg. May be concurrently scheduled with course C145.

Mr. Massengale, Mr. Shideler

**C253. Søren Kierkegaard.** Prerequisites: advanced knowledge of Danish and consent of instructor. Intensive study of the works of Søren Kierkegaard. May be concurrently scheduled with course C146.

Mr. Massengale

**C254. Knut Hamsun.** Prerequisites: advanced knowledge of Norwegian and consent of instructor. Intensive study of the works of Knut Hamsun. May be concurrently scheduled with course C147.

Ms. Norseng

**C263. Seminar in Scandinavian Studies.** Prerequisites: graduate standing or consent of instructor and knowledge of a Scandinavian language. Intensive study of selected aspects of Scandinavian society based on readings in the literature as well as other documentary material. May be repeated for credit (as determined by graduate adviser) with topic change. May be concurrently scheduled with course C180.

**C264. The Theory of the Scandinavian Novel.** Prerequisites: advanced knowledge of a Scandinavian language and consent of instructor. The course examines the predominant structures of the novel, the Scandinavian novel in particular, starting with its beginnings, concentrating on the rise of the novel in the 19th century, and following the novel's evolution in the 20th century. The works of such writers as Kierkegaard, Andersen, Almquist, Jacobsen, Hamsun, and Hansen are central to the course. May be concurrently scheduled with course C182.

Ms. Norseng, Mr. Shideler

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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.** To be arranged with faculty member who will direct the study or research. Twelve units may be applied toward the total course requirement, but only four units may be applied toward the minimum graduate course requirement. May be repeated twice. S/U grading.

**597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examination (4 to 8 units).** To be arranged with faculty member who will direct the study or research. May be repeated twice. 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.

## History

6265 Bunche Hall, 825-4601

### Professors

Edward A. Alpers, Ph.D.  
Joyce Appleby, Ph.D.  
Kendall E. Bailes, Ph.D. (U.C. Irvine)  
Amin Banani, Ph.D.  
Robert L. Benson, Ph.D.  
Kees W. Bolle, Ph.D.  
Giorgio Buccellati, Ph.D.  
E. Bradford Burns, Ph.D.  
Robert I. Burns, S.J., Ph.D.  
Robert N. Burr, Ph.D.  
Mortimer H. Chambers, Jr., Ph.D.  
Claus-Peter Clasen, Ph.D.  
Stanley Coben, Ph.D.  
Robert Dallek, Ph.D.  
Christopher Ehret, Ph.D.  
Derek Fraser, Ph.D.  
Amos Funkenstein, Ph.D.  
John S. Galbraith, Ph.D.  
Frank O. Gatell, Ph.D.  
Juan Gómez-Quiñones, Ph.D.  
Thomas S. Hines, Ph.D.  
Richard Hovannissian, Ph.D.  
Daniel W. Howe, Ph.D.  
Philip C. Huang, Ph.D.  
Norris C. Hundley, Ph.D.  
Michael O. Jones, Ph.D.  
Nikki Keddie, Ph.D.  
Barisa Krekić, Ph.D.  
John H. M. Laslett, D.Phil.  
James Lockhart, Ph.D.  
Peter Loewenberg, Ph.D.  
Andrew Lossky, Ph.D.  
Afaf Marsot, D.Phil.  
Lauro R. Martinez, Ph.D.  
Ronald J. Mellor, Ph.D.  
Eric H. Monkkonen, Ph.D.  
Gary B. Nash, Ph.D.  
Boniface I. Obichere, D.Phil.  
Merrick Posnansky, Ph.D.  
Peter H. Reill, Ph.D.  
Hans J. Rogger, Ph.D.  
Richard H. Rouse, Ph.D.  
Damodar R. SarDesai, Ph.D.  
Alexander P. Saxton, Ph.D.  
Stanford J. Shaw, Ph.D.  
Kathryn Kish Sklar, Ph.D.  
Geoffrey W. Symcox, Ph.D.  
Speros Vryonis, Jr., Ph.D.  
Eugen Weber, M.Litt.  
Richard Weiss, Ph.D.  
Robert S. Westman, Ph.D.  
James W. Wilkie, Ph.D.  
Robert Wohl, Ph.D.  
Stanley A. Wolpert, Ph.D.

### Emeritus Professors

Milton Anastos, Ph.D.  
Eugene N. Anderson, Ph.D.  
Truesdell S. Brown, Ph.D.  
John G. Burke, Ph.D.

John W. Caughey, Ph.D.  
Raymond H. Fisher, Ph.D.  
Jere C. King, Ph.D.  
Gerhart B. Ladner, Ph.D.  
Lynn White, Jr., Ph.D.  
Robert A. Wilson, Ph.D.

### Associate Professors

Robert P. Brenner, Ph.D.  
David M. Farquhar, Ph.D.  
Robert G. Frank, Ph.D.  
Temma E. Kaplan, Ph.D.  
Michael G. Morony, Ph.D.  
Fred G. Notehelfer, Ph.D.  
David W. Sabean, Ph.D., *Acting*  
M. Norton Wise, Ph.D.  
Mary A. Yeager, Ph.D.

### Assistant Professors

Edward G. Berenson, Ph.D.  
Ruth Bloch, Ph.D.  
Margaret W. Creel, Ph.D.  
Robert A. Hill, M.Sc.  
Debora L. Silverman, Ph.D.

### Lecturers

Ludwig Lauerhass, Ph.D.  
Albert Hoxie, M.A., *Emeritus*

### Adjunct Associate Professor

S. Scott Bartych, 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 Library and Information Science. 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

### Preparation for the Major and the Major

The History Department's undergraduate program consists of 16 courses in history (six lower division — the "Preparation for the Major"; ten upper division — the "Major") and four courses in the social sciences outside the department. The following courses are required in the program:

- (1) History 1A-1B-1C.
- (2) Two courses in U.S. history.
- (3) Two courses in non-Western history from the same area (i.e., Latin America, Asia, Near and Middle East, Africa) or in science and technology. Candidates for the California Standard Teaching Credential may not choose science and technology to fulfill their non-Western requirement.
- (4) History 99 (for freshmen and sophomores), 101 (for juniors and seniors), or 100.
- (5) History 197 or 199.
- (6) Four courses in the social sciences outside of history or in other related disciplines as explained below.

The requirements for U.S. and non-Western history may be met with either upper or lower division courses. Normally only six lower division courses in history need to be included in your program, so if you meet the U.S. history requirement at the lower division level, you will have to meet the non-Western requirement at the upper division level (or vice versa). If you choose to meet both requirements at the lower division level, you will still be required to take ten upper division courses to fulfill upper division requirements. The department recommends the following lower division courses to meet the U.S. history and non-Western requirements: History 2; 3A-3B-3C; 3D; 6A-6B-6C; 7A-7B; 8A, 8B; 9A-9B-9C; 9D plus one suitable upper division course; 10A-10B. If only one non-Western course is taken in lower division, an appropriate upper division non-Western course must be included in the major.

All history majors are required to take at least four courses in other departments in the social sciences, whether lower or upper division (anthropology, geography, economics, political science, sociology, psychology). These courses may not be taken on a Passed/Not Passed basis. A one-quarter course from the History 6A-6B-6C sequence may be applied toward this requirement, provided the same quarter course is not used to satisfy any other requirement of the major.

By petition, you may replace up to two social science courses with courses in humanities, fine arts, or natural sciences relevant to your program in history. Courses in communication studies do not fulfill this requirement.

Only two courses offered outside the History Department may be applied as major courses without petition: Anatomy (Medical History) 107A-107B.

Transfer students with deficiencies in lower division courses may by petition substitute appropriate upper division courses in history for the lower division requirements. See the undergraduate counselor.

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 ten 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 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. Special honors seminars are also offered during the junior year. 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.

History 101H is required, as are History 199HA-199HB-199HC, which count as three of the ten required upper division courses. Course 199HA is taken in the Spring Quarter of the junior year; honors students then take courses 199HB and 199HC in the Fall and Winter Quarters of their senior year under the guidance of the sponsoring professor. The Justin Turner Prize is awarded for the outstanding honors thesis.

## Master of Arts Degree

### Admission

For admission to graduate standing in the Department of History, you 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. You also need three letters of recommendation and the scores of the Aptitude Test of the Graduate Record Examination submitted to the department. Students not meeting the grade-point average requirements may be admitted in exceptional cases if their letters of recommendation, GRE scores, or other factors indicate un-

usual promise. Applicants with a year or more of graduate study at other institutions should have attained a GPA of 3.5 or better if they wish to work toward the Ph.D. degree. Applications should be submitted before December 30; notification will be made on or before May 1. Except for extraordinary cases, students are expected to begin their graduate work in the Fall Quarter.

There is no screening examination. Nonhistory majors may be required to take specified courses, depending upon their background and fields of specialization. Because applicants are admitted to pursue graduate work in a specific field, a change of fields after admission requires the approval of the relevant field committee.

An annual *Guide to Graduate Study in History* which explains the requirements and procedures of the graduate program in detail is mailed to all new graduate students who have filed an Intent to Register (prior to registration). The guide lists faculty, their representative publications, and descriptions of courses offered during the year, and is available from the graduate adviser.

### Major Fields or Subdisciplines

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 (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) United States; (10) history of science; (11) special fields (students in the history of religions, Russian history, and modern Jewish history will normally be examined in one of the above fields, but with the consent of the faculty in these fields may petition the graduate guidance and curriculum committee for an M.A. examination in their field of specialization).

### Foreign Language Requirement

If you are contemplating graduate work in history, you should begin study of a foreign language as an undergraduate since reading knowledge of one foreign language approved by the department is required. For French, German, Russian, or Spanish, a score of 500 on the GSFLT is required. Students of United States, Near East, and African history may use departmentally administered translation examinations in French, Spanish, or German in place of the GSFLT. Students of European history must pass departmentally administered examinations in these three languages. For other languages, certification is required by the department teaching the language according to that department's standards.

## 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 applied toward this requirement, and only one in the 500 series may be applied. For students in United States history, a minimum of seven of the nine courses must be at the 200 level, including at least one two-quarter seminar and History 245. Students in European history must include course 225, and Africanists must take course 275.

## Comprehensive Examination Plan

The department follows the comprehensive examination plan. Individual fields specify fulfillment of the examination requirement by (1) a three-hour written examination designed to assess your 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 your program of study. At least two of these papers must have been submitted for graduate courses in the 200 series. Students in the United States field must submit the paper from the two-quarter research seminar in United States history.

Field examiners administer the M.A. comprehensive examinations in November, March, and May of each academic year. The committee will recommend the following examination results: pass to continue, pass subject to reevaluation, terminal pass, fail. In cases where the M.A. is awarded pass subject to reevaluation, the field M.A. committee will reevaluate your progress after an additional three quarters of study. Only in exceptional cases are oral examinations required for the M.A. degree.

## Cooperative Degree Program

This concurrent degree program of the Graduate School of Library and Information Science and the Department of History allows you to combine historical study with the tools of the information professional and to obtain two degrees — the M.L.S. and the M.A. in History. The best sequence of coursework should be discussed with the advisers from this department and the Graduate School of Library and Information Science.

## Ph.D. Degree

### Admission

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 faculty in the field in which they intend to work. Students 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 a Ph.D. program, evaluation examinations are given to determine your continuance to the Ph.D. degree.

An annual *Guide to Graduate Study in History* which explains the requirements and procedures of the graduate program in detail is mailed to all new graduate students who have filed an Intent to Register (prior to registration). The guide lists faculty, their representative publications, and descriptions of courses offered during the year, and is available from the graduate adviser.

## Major Fields or Subdisciplines

Ancient Greece; ancient Rome; medieval constitutional and legal; medieval social and economic; medieval ecclesiastical and religious; medieval intellectual and cultural (medieval history specialists may offer no more than two of these fields in medieval history); Byzantine; Russia since 862; Southeast Europe (Balkans); England, 1485-1763; England since 1763; the British Empire; the Near East, 500-1500; the Near East since 1500; ancient Near East; 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, 900-1800; China since 1800; modern Japan; South Asia; Southeast Asia; Latin America, 1492-1830; Latin America since 1759; history of religions; Jewish history; comparative history; United States: (1) mastery of the general field of United States history sufficient to teach a college-level survey course and (2) a specialized field selected 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 (1800-1850), labor, Mexican-American, social, the new nation (1763-1800), 20th century, urban, women's history. Both the general and a specialized field must be offered by specialists in United States history and only two fields in United States history are permitted. Either field 1 or 2 or both may be selected as minor fields for the Ph.D.

In addition to the European fields listed above, a program in European intellectual and cultural history may be offered.

Candidates offering a field in comparative history as a fourth field for the Ph.D. degree should choose a topic for comparison which would usually coincide with time-area spans of the other three fields defined for the Ph.D. qualifying examinations.

Candidates in the history of science program must select three of the above fields and either the history of medicine or an allied field.

All candidates may offer for examination an approved allied field outside the Department of History.

## Foreign Language Requirement

Foreign language requirements vary according to the major field, although reading knowledge of the prescribed language(s) (one for U.S. history students, at least two for all others) is required. For details, consult the *Program Requirements for UCLA Graduate Degrees, 1984-85: Department of History* or your graduate adviser.

## Course Requirements

You must meet (1) the special requirements for admission listed above and (2) the general requirements set forth under the Graduate Division. A program, extending over the full time of study, must be approved by the department. You are required to complete at least one continuing two- or three-quarter seminar or, alternatively, a continuing sequence of at least two graduate courses approved by the graduate guidance and curriculum committee, which results in a substantial research paper based at least in part on primary sources. If this requirement is met entirely or in part by a sequence of directed study courses (History 596), you must take the course(s) for a letter grade. Students of United States history should complete course 245. Students of European history must complete course 225, and students of African history must complete course 275 unless exempted by special petition. Courses taken to fulfill M.A. degree requirements may also be used to satisfy Ph.D. requirements.

## Teaching Experience

The department cannot provide teaching experience for all Ph.D. candidates and cannot therefore require it for the degree. You should, however, be able to demonstrate ability to give instruction in your field.

## Qualifying Examinations

Full-time graduate students must schedule the written qualifying examination by the end of the ninth quarter of graduate work. The written examination includes the major field only, is normally prepared and administered by the chair of your doctoral committee, and is read by the entire committee before you take the oral qualifying examination. The members of the doctoral committee determine whether or not an examination may be repeated (normally only once).

The written examination must be passed and a dissertation prospectus (approved by the doctoral committee chair) must be written before taking the University Oral Qualifying Examination. In the oral examination you are examined



in four fields, one of which may be an approved allied field. You should select fields in consultation with your faculty sponsor and must receive the department's approval of all four fields. If you fail the oral qualifying examination, you may repeat it once (normally within a period of six months) with the consent of the doctoral committee.

After passing the oral qualifying examination, you are advanced to candidacy and may begin work on the dissertation.

### Final Oral Examination

If required by the qualifying examination committee, a final oral examination will be conducted after completion of the dissertation to cover the field within which the dissertation falls. After approving a dissertation, the chair of the doctoral committee may, with the unanimous consent of the entire committee, recommend a waiver of the final oral examination.

### Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Lower Division Courses

**1A-1B-1C. Introduction to Western Civilization.** Lecture/discussion. A 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 to acquaint them, through reading and critical discussion, with representative contemporary documents and writings of enduring interest.

**2. History of Technology from Antiquity to the 20th Century.** (Formerly numbered 2A-2B-2C.) Designed for students in the natural sciences, social sciences, and fine arts. A survey of the 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. Mr. Burke

**3A-3B-3C. Introduction to the History of Science.** History majors may not apply these courses on the science breadth requirements:

**3A. The Scientific Revolution.** A survey of the beginnings of the physical sciences involving the transformation from Aristotelian to Newtonian cosmology, the mechanization of the natural world, the rise of experimental science, and the origin of scientific societies. Mr. Westman, Mr. Wise

**3B. The Physical Sciences since the Enlightenment.** A broad survey of the development of ideas in classical and modern physical science since Newton. The unifying theme is theories of matter, but more specifically chemistry, thermodynamics, electromagnetic theory of light, energy conservation, relativity, and quantum mechanics are discussed. Mr. Wise

**3C. The Biological Sciences, 1800-1955.** A survey of the development of the biological sciences from the period of Bichat and Müller to the discovery of the double helix. Mr. Frank

**3D. Themes in the History of Medicine.** Lecture, three hours. Prerequisite: sophomore standing. Limited to 30 students. The course examines, through illustrated lectures and focused discussion of primary sources, five important themes in the development of modern medicine: the nature of diagnosis, the emergence of surgery, epidemics, the conception and treatment of insanity, and the use of medical technology. Mr. Frank

**4. Introduction to the History of Religions.** A discussion of the various systems, ideas, and fashions of thought that have dominated Western approaches to the religions of the world since antiquity. The course surveys the development from classical Greek and early Christian theories to modern history with its discoveries of the religions of India, China, the ancient Near East, etc., and the problem of the encounter of various religions in the 19th and 20th centuries. Mr. Bolle

**5A-5B. Survey of British History.** Lecture, three hours. Designed for students wanting a general orientation to British history and those in English literature and prelaw. A survey of the history of England and (after the union between England and Scotland) Great Britain. 5A covers the period from the Middle Ages to the Glorious Revolution in 1688; 5B from then to the 20th century. Mr. Fraser, Mr. Rouse, Mr. Waugh

**6A-6B-6C. History of the American Peoples.** A survey of the American peoples from the advent of aboriginal society to the present, emphasizing racial and ethnic interaction, industrialization, urbanization, and cultural change. Ms. Appleby, Mr. Nash, Mr. Saxton

**6BH. History of the American Peoples (Honors).** A survey of the American peoples from the advent of aboriginal society to the present, emphasizing racial and ethnic interaction, industrialization, urbanization, and cultural change. Mr. Monkkonen

**7A-7B. Survey of the Political History of the U.S.** This sequence (or two quarters of course 6) is strongly recommended for history majors planning to take more advanced courses in U.S. history. Designed for students in the social sciences and other departments who desire a thorough grounding in American political culture. A survey of the history of the U.S. from the Revolutionary era to the present. Emphasis on political developments and the social, cultural, and economic bases of American politics. Ms. Appleby, Mr. Gatell, Mr. Howe, Mr. Saxton

**8A. Latin America: Reform and Revolution.** A 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. Movies and discussions complement the topical lectures. Mr. E.B. Burns and the Staff

**8B. Latin American Social History.** Course 8A is not prerequisite to 8B. The historical and contemporary perspective of the 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. Mr. E.B. Burns and the Staff

**8C. Central America: The Struggle for Change.** Lecture, three hours; discussion, two hours. The historical analysis emphasizes the economic growth and accompanying dependency of Central America from independence until the Great Depression and the turbulent consequences of that combination from 1930 to the present. Attention to the common characteristics of the five nations, as well as their individuality. Mr. E.B. Burns

### 9A-9D. Introduction to Asian Civilizations:

**9A. History of India.** An introductory survey for beginning students of the major cultural, social, and political ideas, traditions, and institutions of Indic civilization. Mr. Wolpert

**9B. History of China.** Survey of the history of China: the evolution of characteristic Chinese institutions and modes of thought from antiquity to 1950; the problems of political change; China's response to the Western impact in modern times. Mr. Farquhar

**9C. History of Japan.** A survey of Japanese history from earliest recorded time to the present, with emphasis on the development of Japan as a cultural daughter of China. Attention to the manner in which Chinese culture was Japanized and the aspects of Japanese civilization which became unique. The creation of the modern state in the last century and the impact of Western civilization on Japanese culture are treated. Mr. Noteheffer

**9D. History of the Near and Middle East.** An introduction to the history of the Muslim world from the advent of Islam to the present day. Ms. Marsot

**10A-10B. Introduction to the Civilizations of Africa.** Intended for students with a general interest in Africa, but also strongly recommended for those intending to take upper division courses in African history. Explores African cultures on a thematic basis within a wider framework of political change over time.

**M70. Survey of Medieval Greek Culture.** (Same as Classics M70.) Classical roots and medieval manifestation of Byzantine civilization: political theory, Roman law, pagan critique of Christianity, literature, theology, and contribution to the Renaissance (including the discovery of America). Mr. Dyck

**99. Introduction to Historical Practice.** Limited to freshmen and sophomores. The course takes the form of discussion classes of not more than 15 students meeting with a faculty member. They explore how works of history are written by focusing on problems of historiography and method.

**99H. Introduction to Historical Practice (Honors).** Limited to freshmen and sophomores. The course takes the form of discussion classes of not more than 15 students meeting with a faculty member. They explore how works of history are written by focusing on problems of historiography and method. Mr. E.B. Burns, Mr. Posnansky

## 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.

**100. History and Historians.** A study of historiography, including the intellectual processes by which history is written, the results of these processes, and the sources and development of history. Attention also to representative historians. Mr. Reill

**101. Introduction to Historical Practice.** Limited to juniors and seniors. The course takes the form of discussion classes of not more than 15 students meeting with a faculty member. They explore how works of history are written by focusing on problems of historiography and method.

**101H. Introduction to Historical Practice (Honors).** Limited to juniors and seniors in the history honors program. The course takes the form of discussion classes of not more than 15 students meeting with a faculty member. They focus on problems in the philosophy of history, historiography, and historical method.

**102. Explorations in Psychoanalysis and History.** Limited to 35 students. The course studies the art of psychological and historical interpretation and assesses recent writings in the field of psychohistory. Mr. Loewenberg, Mr. Wohl

**M103. Historical Archaeology.** (Same as Anthropology M155.) A survey of the aims and methods of historical archaeology as practiced on both sides of the Atlantic, with case studies drawn from North America, the Caribbean, Africa, and Europe. Mr. Posnansky

**M104A-M104B. Ancient Egyptian Civilization.** (Formerly numbered 104.) (Same as Ancient Near East M104A-M104B.) Course M104A is not prerequisite to M104B. The course studies the political and cultural institutions of ancient Egypt and the ideas on which they were based. Discussion proceeds chronologically and covers Prehistory, the Old and Middle Kingdom in M104A. M104B covers the New Kingdom and the Late period until 332 B.C. Mr. Callender

**105. History of Ancient Mesopotamia and Syria.** (Formerly numbered 105A-105B.) The political and cultural development of the "Fertile Crescent," including Palestine, from the Neolithic to the Achae-menid period. Mr. Buccellati

**106A-106B-106C. Survey of the Middle East from 500 to the Present.** (Formerly numbered 106A-106B and 108A-108B.) Background and circumstances of the rise of Islam, the creation of the Islamic Empire, and its development. The rise of Dynastic Successor States and the Modern Nation States. Social, intellectual, political, and economic development:

**106A.** 500 to 1300. Mr. Morony

**106B.** 1300 to 1700. Ms. Marsot

**106C.** 1700 to the Present. Ms. Keddle

**107A-107B. Islamic Civilization:**

**107A.** Premodern Islam. Origins of Islamic civilization, Muhammad and the Quran; development of Islamic doctrine, ritual, piety and law, sectarian Islam, and mysticism. Mr. Morony

**107B.** Islam in the Modern World. Reform movements, legal issues, sociopolitical trends, movements of opposition. Ms. Keddle, Ms. Marsot

**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. Ms. Marsot

**109A-109B. History of North Africa from the Moslem Conquest:**

**109A.** To 1578. Mr. Morony

**109B.** From 1578 to the Present. Ms. Marsot

**110A-110B. Iranian History.** (Formerly numbered 110A-110B-110C.) Political, social, and cultural history of Persia:

**110A.** Islamic Iran to 1800. Mr. Banani

**110B.** Iran from 1800 to the Present. Ms. Keddle

**111A-111B. History of the Turks.** A survey of the society, government, and political history of the Turks from earliest times to the present:

**111A.** Origins to 1808. Turkish origins, early Central Asian and Middle Eastern states. The rise and fall of the Ottoman Empire. Mr. Shaw

**111B.** 1808 to the Present. Modernization of the Ottoman Empire, 1808-1923. The Turkish Republic. The Turks in the world. Mr. Shaw

**112A-112B-112C. Armenian History.** Lecture, three hours:

**112A.** Armenia in Ancient and Medieval Times, 2nd Millennium B.C. to A.D. 11th Century. Mr. Hovannisian

**112B.** Armenia from the Cilician Kingdom through the Periods of Foreign Domination and National Stirrings, 11th to 19th Centuries. Mr. Hovannisian

**112C.** Armenia in Modern and Contemporary Times, 19th and 20th Centuries. The Armenian question and genocide, national republic, Soviet Armenia, and the dispersion. Mr. Hovannisian

**C112D. Introduction to Armenian Oral History.** The uses and techniques of Armenian oral history; the preinterview, the interview, and postinterview procedures; methods of compilation and evaluation. The course includes field assignments and interviews. May be concurrently scheduled with course C212. Mr. Hovannisian

**113. The Caucasus under Russian and Soviet Rule.** A survey of the political, economic, social, and cultural history of the Caucasus region since 1801. The Georgian, Armenian, and Azerbaijani response to Russian and Soviet rule; the nationality question and the Soviet national republics. Mr. Hovannisian

**115A-115B-115C. History of the Ancient Mediterranean World:**

**115A.** A survey of the history of the ancient East from earliest times to the foundation of the Persian Empire. Mr. Mellor

**115B.** The history and institutions of the Greeks from their arrival to the death of Alexander. Mr. Chambers, Mr. Mellor

**115C.** The history and institutions of Rome from the founding of the city to the death of Constantine. Mr. Chambers, Mr. Mellor

**116A-116B. History of Ancient Greece:**

**116A.** The Rise of the Greek City-State. Emphasis on the archaic period and the early classical age through the Persian Wars. Mr. Chambers

**116B.** The Classical Period. The clash between Athens and Sparta, the consequent rise of Macedonia, and the aftermath of Alexander the Great. Mr. Chambers

**117A-117B. History of Rome:**

**117A.** To the Death of Caesar. Emphasis on the development of imperialism and on the constitutional and social struggles of the late republic. Mr. Mellor

**117B.** From the Death of Caesar to the Time of Constantine. The early empire is treated in more detail supplemented by a survey of the social and economic changes in the 3rd century. Mr. Mellor

**118. Introduction to Roman Law.** The course provides a survey of the public (constitutional), criminal, and private law of the Romans. Topics include the social context of Roman law, the historical evolution of Roman law, mechanisms and procedures by which the law was administered, and the content of private law. Mr. Mellor

**119. The Christian Church.** Constitutional, political, and economic history of the Church: Christianization of the Roman Empire and the Germanic kingdoms; governance and institutions of the Church; relations between Church and monarchy; the high tide of papalism; crises of authority on the eve of the Reformation. Mr. Benson

**120. The Christian Religion.** The religious experience of Christians — conversion, doctrine, belief, heresy, spirituality, worship, liturgy, and art — from the founding of the Church to the eve of the Reformation. Examines the religious life of lay Christians, as well as that of the Church's institutional, intellectual, and spiritual leaders. Mr. Benson

**121A-121B. Medieval Europe.** Recommended prerequisite: Western civilization. A basic introduction to Western Europe from Latin antiquity to the age of discovery, with emphasis on the medieval use of Greco-Roman antiquity, the history of the manuscript book, and the growth of literacy:

**121A.** 400 to 1000. Mr. Rouse

**121B.** 1000 to 1500. Mr. Rouse

**121C. Medieval Civilization: The Mediterranean Heartlands.** A survey of Western Mediterranean Europe, social-economic-cultural within a political framework, including its relation with other cultures. Mr. R.I. Burns

**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. Mr. R.I. Burns

**M122A-M122B. Byzantine Civilization:**

**M122A.** (Same as Classics M170A.) Emphasis on Byzantine theology. Mr. Dyck

**M122B.** (Same as Classics M170B.) Literature, relations with Rome, and the Renaissance. Mr. Dyck

**123A-123B. Byzantine History.** The course stresses the political, socioeconomic, religious, and cultural continuity in the millennial history of Byzantium. It begins with the reforms of Diocletian and includes such topics as Byzantium's relations with Latin Europe, Slavs, Sassanids, Arabs, and Turks. Mr. Vryonis

**125A-125F. History of Modern Europe.** (Formerly numbered 125A-125E.):

**125A.** The Renaissance: Power and Culture in the Italian City-States. Mr. Martinez

**125B.** The Reformation: Church and Religion in Early 16th Century. Revolutionary tendencies in German society. The peasant uprising. Theology and political thought of Erasmus, Luther, Zwingli, Calvin, and the Anabaptists. The new churches. The effects of the Reformation on society. Mr. Clasen

**125C.** Absolutism and Enlightenment: Europe under the Old Regime. State, society, and culture in Europe from the mid-17th century until the eve of the French Revolution. Mr. Sabeian

**125D.** Europe, 1789-1900. The French Revolution and Napoleon. The Industrial Revolution. The uprisings of 1848. The unification of Germany and Italy. Industrialization and imperialism. The rise of socialism. Population growth and changes in social structure. Mr. Reill, Mr. Silverman

**125E.** Europe in the 20th Century. International rivalries. The First World War and its impact on thought and society. Fascism and Communism. World War II. European recovery and integration. Mr. Loewenberg, Mr. Wohl

**125F.** Europe: 1945 to the Present. The legacy of World War II. Reconstruction and recovery in Western Europe. The East European revolution. The Yugoslav exception. Scandinavian socialism. The German problem. European integration and the Common Market. Gaullism. The events of 1968 and their aftermath. Eurocommunism and the resurgence of the Left in Western Europe. Poland and the limitations of change in the Soviet Bloc. Mr. Wohl

**126A-126E. Cultural and Intellectual History of Modern Europe.** Climates of taste and climates of opinion. Educational, moral, and religious attitudes; the art, thought, and manners of the time in a historical context:

**126A.** 16th Century. Mr. Clasen, Mr. Westman

**126B.** 17th Century. Mr. Funkenstein

**126C.** 18th Century. Mr. Reill

**126D.** 19th Century. Mr. Loewenberg, Mr. Weber

**126E.** 20th Century. Mr. Loewenberg, Mr. Weber, Mr. Wohl

**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 the growth of the state. Mr. Symcox

**127B.** 1815 to 1945. The balance of power; the growth of the nation state; imperial and colonial rivalries; the two World Wars. Mr. Symcox

**128A-128D. History of Modern France.** (Formerly numbered 128A-128E.):

**128A.** France, 1450-1620. Institutions of the French monarchy and territorial formation of France in the 15th century. French humanism. Catholic and Protestant Reformations in 16th-century France. French wars of religion. Mr. Lossky

**128B.** France, 1620-1770. Political and intellectual history of France, principally in the 17th century, with special emphasis on the role of Richelieu and Louis XIV. Mr. Lossky

**128C.** A Time of Revolutions, 1770-1871. Social and political history of three kingdoms, three republics, and two empires. Mr. Weber

**128D.** The Making of a Modern France, 1871 to the Present. From oligarchy to democratic bureaucracy in two wars and three republics. Mr. Weber

**129A-129C. History of Modern Germany and Austria.** (Formerly numbered 129A-129D.):

**129A.** 1500 to 1648. The political structure of empire and territories, the economy, social classes, daily life, book publishing and universities, the Reformation and Counter Reformation, the Thirty Years' War, military entrepreneurship, population losses, the Peace of Westphalia. Mr. Clasen

**129B. 1648 to 1848.** Survey of social, economic, cultural, and political history, including the rise of absolutist and bureaucratic government, Enlightenment and reform, the emergence of Austro-Prussian dualism, the transformation of the German economy, the impact of the French Revolution and the German reform movement, Restoration and Metternichian reaction, the rise of Romanticism, and the causes and failure of the Revolutions of 1848. Mr. Reil

**129C. 1848 to Present.** Revolutions of 1848, Prussian constitutional struggle, German unification, the Bismarckian and Wilhelmine eras in Germany and the Ausgleich in Austria, liberalism, industrialism, anti-Semitism, social democracy, the World Wars, revolutions, republics, Fascism and Nazism, occupation, and the Austrian, German Federal, and German Democratic Republics. Mr. Loewenberg

**131A-131D. History of Russia.** Lecture, three hours:

**131A.** From the Origins to the Rise of Muscovy. Kievan Russia and its culture, Appanage principalities and towns; the Mongol invasion; the unification of the Russian state by Muscovy, Autocracy and its Servitors; serfdom. Mr. Krekić, Mr. Lossky

**131B.** Imperial Russia. Westernization of state and society; centralization at home and expansion abroad; the peasant problem; beginnings of industrialization; political reforms; movements of political and social protest; the Revolution of 1905. Mr. Rogger

**131C.** Revolutionary Russia and the Soviet Union. Relations between state and society; peasantry and working class; Russia in World War I; the Revolutions of 1917; consolidation of the Bolshevik Regime; succession crisis and ascendancy of Stalin, collectivization and industrialization; foreign policy and World War II; death of Stalin and de-Stalinization. Mr. Rogger

**131D.** Intellectual History. Social thought and movements in modern Russia, late 18th to early 20th century. Mr. Rogger

**132A-132B. History of Italy:**

**132A.** 1530 to 1815. Survey of social, economic, political, and cultural history covering the eclipse of the Italian economy and the city-state, the rise of absolutist governments. Enlightenment reforms and the origins of the Risorgimento. Mr. Symcox

**132B.** 1861 to the Present. Political, economic, social, diplomatic, and ideological developments. Mr. Wohl

**133A-133B. The Social History of Spain and Portugal:**

**133A.** The Age of Silver in Spain and Portugal, 1479-1789. The course deals with the development of popular history in the Iberian Peninsula. Emphasis on peasants and urban history, gold routes, slave trade, history of women, and the development of different types of collective violence. Ms. Kaplan

**133B.** Rebellion and Revolution in Modern Spain and Portugal, 1789 to the Present. Spain's position in Europe and its potentialities for social change are discussed through investigations of urban history, agrarian social structure, history of women, problems of slow industrial development, imperialism, anarchism, and labor history. Ms. Kaplan

**134A. Southeastern Europe, 500-1500.** A political, economic, and cultural survey of the independent Balkan states in the Middle Ages. Mr. Krekić

**134B. Southeastern Europe, 1500-1918.** The Balkans under Ottoman rule, movements of national liberation, and the formation of nation states. Mr. Krekić

**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. Mr. Brenner, Ms. Kaplan

**136A-136Z. Topics in European History.** The individual courses in this series aim to provide students with an integrated introduction to important aspects of European history by focusing on a specific topic within a broad framework:

**136A.** Social Movements. Ms. Kaplan

**136B.** Peasants and Agrarian Society. Mr. Brenner

**136C.** Urban Society. Mr. Symcox

**136F.** The Family. The social history of the family in Western Europe since the Middle Ages. Household and family organization of peasants, artisans, and aristocrats; kinship, child-rearing, parental authority, marriage and inheritance systems; attitudes toward love, sex, and children.

**136G.** Psychohistory. Mr. Loewenberg, Mr. Wohl

**136I.** Special Topics.

**136J.** Women. Ms. Kaplan

**137A-137B. Survey of English History.** Lecture, three hours. A basic survey of English history from the Wars of the Roses to the present, dealing with changes in society, economics, and ideas from an agrarian, medieval monarchy to an industrial national and social democracy.

**137A.** 1450 to 1660.

**137B.** 1660 to the Present.

**138A-138B. Medieval England:**

**138A.** Anglo-Saxon England and the Norman Conquest, 900-1215. The nature of the society that emerged from the Viking invasions; the conquest and colonization by the Normans; the principles of lordship by which they ruled, to the Magna Carta (1215). Mr. Rouse

**138B.** England in the High Middle Ages: Magna Carta to 1400. Emphasis on the social and economic developments that underlay constitutional change, peasant revolt, the Black Death, and the Hundred Years' War. Mr. Rouse

**139. Renaissance England.** Culture and society. Emphasis on literary culture (Elizabethans, Jacobean, Carolines), with readings and lectures on different aspects of political and economic life as required for a serious understanding of the culture. Mr. Martines

**140A-140B. Early Modern England, 1450-1700:**

**140A.** The Development of Capitalism in England, Especially the Countryside, 1450-1700. The transformation of class relations; the emergence of political conflicts; state centralization and military aristocracy, Crown versus Parliament, the English Revolution. Mr. Brenner

**140B.** Analysis of the Transformation of Religious and Political Ideology in Relationship to Socioeconomic and Political Conflicts. Recommended prerequisite: course 140A. The English Reformation and the development of the State; Protestantism and political opposition; religious radicalism and the English Revolution. Mr. Brenner

**141A-141B. Modern England.** Analysis of the English economy, society, and polity since 1688, focusing on the dynamics of both stability and change:

**141A.** 18th and 19th Centuries, 1688-1832. Mr. Fraser

**141B.** 19th and 20th Centuries, 1832 to World War II and its Aftermath. Mr. Fraser

**142A-142B. The British Empire since 1783.** The political and economic development of the British Empire, including the evolution of colonial nationalism, the development of the commonwealth idea, and changes in British colonial policy. Mr. Galbraith, Mr. SarDesai

**143. History of Canada.** A survey of the growth of Canada into a modern state from its beginnings under the French and British colonial empires. Mr. Galbraith

**144. History of Australasia.** The history of Australia and New Zealand from the European settlement, with emphasis on the interrelationships between the settlers and the aborigines; comparisons and contrasts between the Australian and New Zealand experience. Mr. Galbraith

**145A. Colonial America, 1600-1763.** An examination of the molding of an American society in English North America from 1600 to 1763. Emphasis on the interaction of three converging cultures: Western European, West African, and American Indian. Ms. Appleby, Ms. Bloch, Mr. Nash

**145B. Revolutionary America, 1760-1800.** An inquiry into the origins and consequences of the American Revolution, the nature of the revolutionary process, the creation of a constitutional national government, and the development of a capitalist economy. Ms. Appleby, Ms. Bloch, Mr. Nash

**146A-146B. The United States: 1800-1850:**

**146A.** Jeffersonian America. Jeffersonian Republican ascendancy and the Era of Good Feelings, 1800-1828; disintegration of the Federalist opposition; the testing of American nationality in the second war with Britain; beginnings of the transportation and industrial revolutions; restructuring of politics in an increasingly egalitarian age. Mr. Gatell, Mr. Howe

**146B.** Jacksonian America and Beyond. The "Jacksonian Revolution" and its aftermath, 1829-1850; the 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. Mr. Gatell, Mr. Howe

**147A. The United States: Civil War and Reconstruction.** Topics include the rise of sectionalism, the antislavery crusade; the formation of the Confederate States; the war years; political and social reconstruction. Ms. Creel

**147B. The United States, 1875-1900.** American political, social, and institutional history in a period of great change. Emphasis on the altering concepts of the role of government and the responses to that alteration. Mr. Saxton

**148A-148B. The United States: The 20th Century.** The political, economic, intellectual, and cultural aspects of American democracy in the 20th century. Mr. Coben, Mr. Weiss

**148C. The United States since 1945.** A history of the political, social, and diplomatic developments that have shaped the United States since 1945. Mr. Dallek, Mr. Weiss

**149A-149B. American Economic History:**

**149A.** 1790 to 1910. Examines the roles of economic forces, institutions, individuals, and groups in promoting or impeding effective change in the American economy, 1790-1910. During this period the technical skeleton of the modern industrial structure was formed. The course explains why and how the American economy evolved into a dual economy, characterized by a center of firms large in size and influence and a periphery of smaller firms. Ms. Yeager

**149B.** 1910 to the Present. Examines the 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 the world economy, 1910 to the present. Ms. Yeager

**150A-150B. Intellectual History of the United States.** The principal ideas about humanity and God, nature and society, which have been at work in American history. Includes the sources of these ideas, their connections with one another, their relationship to American life, and their expression in great documents of American thought. Mr. Howe

**150C. History of Religion in the United States.** Consideration of the religious dimension of people's experience in the United States. A number of religious traditions which have been important in this country are examined, and attention is devoted to relating developments in religion to other aspects of American culture. Mr. Howe

**151A-151B. Constitutional History of the United States:**

**151A.** The Origins and Development of Constitutionalism in the United States. Particular emphasis on the framing of the Federal Constitution in 1787 and its subsequent interpretation. Topics include judicial review, significance of the Marshall Court, and the effects of slavery and the Civil War on the Constitution. Mr. Gatell

**151B.** Constitutionalism since the Civil War. Particular emphasis on the development of the Supreme Court, the due process revolution, the Court and political questions, and the fact of judicial supremacy within self-prescribed limits.

**152A-152B. American Diplomatic History:**

**152A.** The establishment of an independent foreign policy, the territorial expansion of the United States, and the emergence of a world power. Mr. Dallek

**152B.** The Role of the United States in the 20th-Century World. Mr. Dallek

**153. The United States and the Philippines.** Knowledge of Southeast Asian or United States history, or both, is recommended. An examination of the interrelationships of immigration and of colonialism and independence between the United States and the Philippines, focused mainly within the time period of 1898 to the present. Mr. Saxton

**154A-154B. United States Urban History:**

**154A.** The Preindustrial and Early Industrial City. Focuses on the social, spatial, and economic development of U.S. cities. Special attention to the social consequences of the preindustrial and early industrial economic relationships. Mr. Monkkonen

**154B.** The Industrial and Postindustrial City. Course 154A is not prerequisite to 154B. Focuses on the mature urban network, with concentration on social, spatial, and economic interaction. The issues of mass society, neighborhood, crime, poverty, ethnicity, and racial discrimination are covered. Mr. Monkkonen

**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 the allied arts. The focus is on the development of an architectural consciousness in America, ways in which the built environment has affected its users and observers, and the extent to which it has reflected their values and ways of living. **154C** covers the period from 1600 to 1890; **154D** covers 1890 to the present. Mr. Hines

**155A-155B. American and European Working Class Movements.** Examines major episodes in the institutional, economic, and cultural development of the American working class from Colonial times to the present, emphasizing both organized and unorganized labor in a comparative context. A.F. of L., rise of industrial unionism, and labor politics are also discussed. Mr. Laslett

**156A-156B. American Social History, 1750-1960.** A 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** covers the period from 1750 to 1860; **156B** covers 1860 to 1960. Mr. Coben

**156C-156D-156E. Social History of American Women.** A survey of the major demographic, economic, social, and intellectual factors shaping the lives of women in families, at work, and in larger social collectivities. Class, regional, racial, and ethnic comparisons are emphasized.

**156C.** Colonial and Early National, 1600-1820.

Mr. Sklar

**156D.** Victorian and Industrial, 1800-1920.

Mr. Sklar

**156E.** 20th Century, 1900-1975.

Mr. Sklar

**157A-157B-157C. North American Indian History.** History of Native Americans from contact to the present. Emphasizes the ethnohistorical dimensions of culture change, Indian political processes, and the continuity of Native American cultures. Focuses on selected Indian peoples in each period:

**157A.** Contact to 1760.

**157B.** 1760 to 1860.

**157C.** 1860 to the Present.

**158A. Comparative Slavery Systems.** An examination of the slavery experience in various New World slave societies. The course focuses on outlining the similarities and the differences among the legal status, treatment, and slave cultures of North American, Caribbean, and Latin American slave societies.

**158B-158C. Introduction to Afro-American History.** A survey of the Afro-American experience. Focuses on the three great transitions of Afro-American life: the transition from Africa to New World slavery, the transition from slavery to freedom, the transition from rural to urban milieus. Ms. Creel, Mr. Hill

**158D. Afro-American Urban History.** An examination of Afro-American urban life prior to 1945. The course focuses on the transformation from slavery to freedom and the shift from Southern to Northern areas. It looks closely at the forces which both propelled Afro-Americans to the cities and which also inhibited their adjustment to them.

**158E. Afro-American Nationalism in the First Half of the 20th Century.** A critical examination of the Afro-American search in the first half of the 20th century for national/group cohesion through collectively built institutions, associations, organized protest movements, and ideological self-definition. Mr. Hill

**M159A. History of the Chicano Peoples.** (Formerly numbered 159A.) (Same as Chicano Studies M159A.) A survey lecture course on the 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 a special focus on labor and politics. Provides an integrated understanding of change over time in the Mexican community by inquiry into the major formative historical forces affecting the community. Deals with social structure, economy, labor, culture, political organization, conflict, and international relations. Emphasis is on social forces, class analysis, social, economic, and labor conflict, ideas, domination and resistance. Developments are related to historical events of significance occurring both in the United States and Mexico. Course involves lectures, special presentations, reading assignments, written examinations, library and field research, and submission of a paper. Mr. Gómez-Quiriones

**M159B. History of the Chicano Peoples.** (Formerly numbered 159B.) (Same as Chicano Studies M159B.) A survey lecture course on the historical development of the Mexican (Chicano) community and people of Mexican descent in the United States through the 20th century, with a special focus on labor and politics. Provides an integrated understanding of change over time in the Mexican community by inquiry into the 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 are related to historical events of significance occurring both in the United States and Mexico. Course involves lectures, special presentations, reading assignments, written examinations, library and/or field research, and submission of a paper. Mr. Gómez-Quiriones

**160. The Immigrant in America.** A historical analysis of the social and economic causes and effects of immigration, particularly after the 1880s, emphasizing the problems of acculturation and adjustment. The restrictionists and the implications of immigration policy on U.S. foreign policy are stressed. Mr. Laslett

**161. Asians in American History.** A study of the politically troubling question of entry into the United States of immigrants ineligible for citizenship and their citizen children in American history.

**162. The American West.** A 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. Mr. Hundley

**163. History of California.** The economic, social, intellectual, and political development of California from the earliest times to the present. Mr. Hundley

**165A-165B. Colonial Latin America.** Studies in the general development of Latin America prior to 1825, with emphasis on social history. Mr. Lockhart

**165C. Indians of Colonial Mexico.** A survey of the social and cultural history of the Indians of Mexico, especially central Mexico, from the time of the European conquest until Mexican independence, emphasizing an internal view of Indian groups and patterns on the basis of records produced by the Indians themselves. Mr. Lockhart

**166. Latin America in the 19th Century.** An intensive analysis of the economic, social, and political problems of the Latin American nations from their independence to around 1910. Mr. E.B. Burns, Mr. Burr

**167A-167B-167C. Latin America in the 20th Century.** Experiments in national development are analyzed for "visible" and "invisible" historical problems and processes. Timing of primary and secondary social changes are related to economic, political, cultural, and geographic context. Successive country case studies each focus on world pressures and interplay of centralized-decentralized power struggles (emphasized in course 167A), the role of personalist leaders (emphasized in course 167B), and definition of the national polity (emphasized in course 167C). Mexico is treated in course 171:

**167A.** Haiti, Uruguay, Costa Rica, Guatemala, Cuba, Chile. Mr. Wilkie

**167B.** Bolivia, Dominican Republic, Nicaragua, Argentina, Paraguay, Venezuela. Mr. Wilkie

**167C.** Panama, Colombia, Ecuador, Peru, Honduras, El Salvador, Brazil. Mr. Wilkie

**168. History of Latin American International Relations.** Emphasis on the developing interests of the Latin American nations in their relationship with one another and with other areas of the world, beginning with 19th-century independence. Mr. Burr

**169. Latin American Elitismo.** Lecture, three hours. Prerequisite: course 167A, 167B, 167C, or 171. Study focuses on elitismo (defined as oral or non-institutionalized knowledge involving the leaders' conceptual and perceptual life history views) in contrast to folklore (the followers' traditional or popular views). Elitismo genres include oral history, literature, and cinema. Mr. Wilkie

**170A. Latin American Cultural History.** (Formerly numbered 170.) Lecture, three hours. Intellectual, artistic, and folk expressions of the Latin American spirit and character are examined in readings and lectures, with emphasis on the unique contribution of Latin Americans to develop self-interpretation. Music, films, and slides supplement discussions. Mr. E.B. Burns

**170B. The Classic Travel Accounts of Latin America since 1735.** Lecture, three hours. 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. Published works are compared to photographic series to analyze the great variety of geographic regions, peoples, customs, occupations, dress, food, architecture, and transportation in the twenty countries of the area. Mr. Wilkie

**171. The Mexican Revolution since 1910.** Lecture, three hours. The concept of "permanent crisis" is examined to describe and explain the structure of "permanent revolution" under "one-party democracy." Course analyzes unresolved colonial and 19th-century problems and crises that have influenced modern-day Mexico, if in modified form.

Mr. Wilkie

**173. Modern Brazil.** Lectures treat selected topics in the political, economic, social, and cultural development of Brazil. Topical emphasis falls on modernization and the struggle for change, 1850 to the present. Discussions, films, slides, and guest speakers supplement and complement the lectures.

Mr. E.B. Burns

**174. Brazilian Intellectual History.** The general intellectual development of Brazil, with emphasis on those introspective movements in which the Brazilians attempted to interpret themselves, their nation, and their civilization.

Mr. E.B. Burns

**175A-175Z. Topics in African History.** Prerequisite: one prior course in African history at UCLA or consent of instructor. Examines specific topics which have a continental application rather than proceeding on a strictly chronological or regional basis:

**175A. Prehistoric Africa—Technological and Cultural Traditions.** A survey of the nondocumentary sources of early African history, with particular reference to technological, economic, and cultural developments from the origins of Man until the colonial period.

Mr. Posnansky

**175B. Africa and the Slave Trade.** Focuses on the social, economic, political, and cultural impact of the slave trade on African society. Emphasizes the Atlantic trade without neglecting those of the ancient Mediterranean, Islamic, and Indian Ocean worlds. Abolition and the African diaspora are also explored.

Mr. Alpers, Mr. Obichere

**175C. Africa in the Age of Imperialism.** Topics include the penetration of pre-capitalist social formations by capital, the emergence of classes, the nature of the colonial and postcolonial state, and the struggle for national liberation in a global context.

Mr. Alpers, Mr. Obichere

**176A-176B. History of West Africa:**

**176A. West Africa from Earliest Times to 1800.**

Mr. Obichere, Mr. Posnansky

**176B. West Africa since 1800.**

Mr. Obichere

**177. Ethiopia and the Horn of Africa.** Lecture, three hours. Surveys the history of Ethiopia, Somalia, and Sudan.

Mr. Alpers, Mr. Ehret

**178A-178B. History of Eastern Africa.** Lecture, three hours:

**178A.** Examines the cultural diversity of Eastern African societies, the growth of more complex political systems, and the impact of international trade to the later 19th century.

Mr. Alpers, Mr. Ehret, Mr. Posnansky

**178B.** Concentrates on the economic, social, and political history of Eastern Africa since the imposition of colonial rule. The themes of underdevelopment and protest provide a focus for the course.

Mr. Alpers, Mr. Ehret, Mr. Posnansky

**179A-179B. History of Southern Africa:**

**179A.** History of Southern Africa from the Origins to 1870. The origins of the South African peoples and their interactions to 1870. Attention to social and economic as well as political aspects.

Mr. Ehret

**179B.** History of Southern Africa since 1870. The interactions between the inhabitants of Southern Africa since 1870. Attention to social and economic as well as political aspects.

Mr. Galbraith

**182A-182B-182C. History of China:**

**182A.** Origins to 900. Bronze age and iron age China; the classical thinkers; the birth of the imperial state and the development of an aristocratic society.

**182B.** 900 to 1500. Prerequisite: course 9B or 182A or equivalent readings. The end of aristocratic rule; the mature imperial state and bureaucratic government; the foreign presence; trade, agriculture, and the growth of cities.

**182C.** 1500 to 1800. The background to modern China; landholding and agriculture; nascent capitalism; peasant movements; neo-Confucianism and the Manchu state.

Mr. Farquhar, Mr. Huang

**183. Modern China, 1840-1920.** From the Opium War to the May Fourth Movement, imperialism, semi-colonial China, and popular movements; some attention to contrasts between established and revolutionary interpretations.

Mr. Huang

**184. The Chinese Revolution.** From the founding of the Chinese Communist Party to the present. Special emphasis on the evolution of Mao's thought, the history of the Communist movement, the conditions in the Chinese countryside, the revolutionary developments under the People's Republic.

Mr. Huang

**185. The Mongols in East Asian History.** Prerequisite: course 9B or 182B or 182C. Emphasis on the period from 1200 to 1900. Special attention to nomadic pastoralism, Mongolian society, the first empire, and relations with China and Tibet.

Mr. Farquhar

**186. Diplomatic History of the Far East.** The role of the Far Eastern states in the international community, beginning with the establishment of the Treaty System in China and the opening of Japan to intercourse with the rest of the world in 1854.

**187A-187B-187C. Japanese History.** The political, economic, and cultural development of Japan from prehistory to the present:

**187A.** Ancient: Prehistory to 1600.

Mr. Notehelfer

**187B.** Early Modern: 1600 to 1868.

Mr. Notehelfer

**187C.** Modern: 1868 to the Present.

Mr. Notehelfer

**188A. Early History of India.** Introduction to the civilization and institutions of India. A survey of the history and culture of the South Asian subcontinent from the earliest times to the founding of the Mughal Empire.

Mr. Wolpert

**188B. Recent History of India and Pakistan.** History of the South Asian subcontinent from the founding of the Mughal Empire through the eras of European expansion, British rule, and the nationalist movement to the present.

Mr. Wolpert

**190A-190B. History of Southeast Asia:**

**190A.** Early History of Southeast Asia. A political and cultural history of the peoples of Southeast Asia from the earliest times to about 1815.

Mr. SarDesai

**190B.** Southeast Asia since 1815. History of modern Southeast Asia, with emphasis on expansion of European influence in the political and economic spheres, growth of nationalism, and the process of decolonization.

Mr. SarDesai

**M191A-M191B. Survey of Jewish History.** (Same as Jewish Studies M191A-M191B.) A survey of social, political, and religious developments:

**M191A.** From Biblical Times to the End of the Middle Ages.

Mr. Funkenstein

**M191B.** From the End of the Middle Ages to the Present.

Mr. Funkenstein

**191C-191D. Focal Themes in Jewish History.** The course treats in depth one major theme in Jewish history (such as the history of Messianic Movements, the structure of the Jewish communities) through the ages.

Mr. Funkenstein

**191E-191F. The Third Reich and the Jews:**

**191E.** The Rise of Nazi Totalitarianism. Anti-Semitic theories, movements, and practices and their impact on German Jewry.

**191F.** The Second World War. Nazi policies in the occupied territories, expulsion and extermination, Jewish resistance, and the fate of the Jewish communities of Eastern Europe.

**192A-192B. Jewish Intellectual History.** 192A covers the medieval period; 192B the modern period. The course studies the development of Jewish self-understanding in relation to the intellectual climate of the environment as expressed in the halacha, in philosophy, and in cabalism.

Mr. Funkenstein

**193A. History of Religions: Myth.** The nature and function of myth in the history of religion and culture. Examples are selected from nonliterate as well as from other Asian and European traditions.

Mr. Bolle

**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. See *Schedule of Classes* for specifics. May be taken independently for credit.

Mr. Bolle

**193C. Religions of South and Southeast Asia.** Prerequisite: course 4 or 193A. Topics vary from year to year and include Buddhism in India; the religions of Java and Bali; the nonliterate traditions of India and Southeast Asia. See *Schedule of Classes* for specifics. May be taken independently for credit.

Mr. Bolle

**193D. Religions of the Ancient Near East.** The 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.

Mr. Buccellati

**193E. Special Topics in the History of Religions.** Topics are announced in the *Schedule of Classes* and include ancient Germanic cults; Renaissance mysticism; mystics of the low countries; goddesses; religion in a secular age.

Mr. Bolle

**194A. History of the Early Christians.** (Formerly numbered 198X.) Lecture, three hours. The Christian movement from its origins to ca. 160 C.E., stressing its continuity/discontinuity with Judaism, the various responses to Jesus of Nazareth, the writings produced during this period, the movement's encounters with its religious, social, and political world, and methods of research.

Mr. Barchy

**194B. The Religious Environment of the Early Christians.** (Formerly numbered 198G.) Lecture, three hours. The rich variety in religious practice and thought in the Mediterranean world of the 1st century C.E. as in the 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.

Mr. Barchy

**195A-195D. History of Science.** Science and scientific thought in relationship to society:

**195A.** Medieval and Renaissance Science. Prerequisite: course 3A or consent of instructor. 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 are stressed; some attention to the occult sciences.

Mr. Funkenstein, Mr. Westman

**195B.** Perspectives on the Early Modern Physical Sciences. Prerequisite: course 3A or consent of instructor. A detailed view of selected topics in the development of the physical sciences from 1600 to 1750, with focus on explanations of historical change in science. Normally, four topics are studied in order to cover a broad range of scientific, philosophical, and social issues.

**195C.** The Classical Physical Sciences: 18th and 19th Centuries. Prerequisite: course 3B or consent of instructor. Studies intensively several topics in the development of classical physical science from Newton's mechanics to Maxwell's electromagnetic theory, with special attention to demands of the Enlightenment, the Industrial Revolution, and 19th-century professionalized science.

Mr. Wise



**195D. Physical Sciences in the 20th Century.** Prerequisite: course 3B or consent of instructor. Provides a nonmathematical but nevertheless detailed look at selected physical sciences and scientific issues (e.g., the birth of quantum mechanics and relativity; stellar evolution and cosmological theories; nuclear physics, nuclear weapons, and nuclear policy; and the changing character of industrialized science).

Mr. Wise

**M195F-M195G. History of Biological Sciences.** (Same as Anatomy/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.

Mr. Frank (F,W)

**197. Undergraduate Seminars.** Limited to 15 students meeting with a faculty member. Seminars are organized on a topics basis with readings, discussions, papers. Signups and descriptions of offerings each quarter are available in the undergraduate counselor's office (6248 Bunche Hall). May be repeated once for credit. When concurrently scheduled with courses 201A-201U or 203, undergraduates must obtain instructor's consent to enroll.

**199. Special Studies in History.** An intensive directed research program. Eight units may be applied toward the B.A. degree requirements.

**199HA-199HB-199HC. Directed Studies for Honors.** Limited to history honors majors. In Progress grading.

**199HA.** Seminar meetings to help students define their research topics and explore problems of historical research. Extensive reading and research in the field of the proposed honors thesis.

**199HB.** Continued reading and research culminating in a draft of the honors thesis.

**199HC.** Revisions of the draft and preparation of polished honors thesis; oral examination on thesis.

## Graduate Courses

Admission to all graduate courses is subject to the instructor's consent and to appropriate language qualifications. For multiterm courses, credit and grades will be 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.** **200A.** Ancient Greece; **200B.** Ancient Rome; **200C.** Medieval; **200D.** Early Modern Europe; **200E.** Modern Europe; **200F.** Russia/Eastern Europe; **200G.** Britain; **200H.** United States; **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. May be repeated for credit.

**M200V. Advanced Historiography—Afro-American.** (Same as Afro-American Studies M200A.) May be repeated for credit.

Ms. Creel

**M200W. Advanced Historiography—American Indian Peoples.** (Same as American Indian Studies M200A.)

**200X. Advanced Historiography—Oral History.** An introduction to the practice, method, and theory of oral history.

**201A-201U. Topics in History.** Topic titles are the same as for courses 200A-200U. A graduate course involving reading, lecturing, and discussion of selected topics. Does not fulfill the seminar requirements for the Ph.D. degree. May be repeated for credit. When concurrently scheduled with course 197, undergraduates must obtain instructor's consent to enroll.

**202A-202B. Seminar in Comparative Modern Economic History.** Discussion, three hours. Prerequisite: graduate standing. The course focuses on the 19th and 20th centuries and deals with the study of problems of modern economics, including such topics as industrialization, growth, demography, development, and economic change. In Progress grading.

Ms. Yeager

**203. Topics in Comparative History.** Possible topics include study of European expansion and its impact on non-European societies, the American Revolution in an international perspective, etc.

**204A-204B. Seminar in Near and Middle Eastern History.** Methodology, socioeconomic and political change in the Arab world.

Ms. Marsot

**205A-205B. Seminar in Medieval Middle Eastern History.**

Mr. Morony

**206A-206B. Seminar in the Social History of the Middle East.** The interrelationship of city, tribe, and village in the Middle East; the role of such definable social groups as women, religious classes, middle classes, landlords, tribesmen, and peasants; social change.

Ms. Keddle

**M207. Seminar in Ancient Mesopotamia.** (Same as Ancient Near East M250.) Selected topics on the political, social, and intellectual history of ancient Mesopotamia. May be repeated for credit.

Mr. Buccellati

**209A-209B. Seminar in Ottoman and Modern Turkish History.**

Mr. Shaw

**211A-211B. Seminar in Armenian History.**

Mr. Hovannisian

**C212. Methods in Armenian Oral History.** (Formerly numbered 212.) Prerequisite: proficiency in the Armenian language. Lectures and laboratory in the methods of taking, processing, and utilizing depositions and other oral sources for Armenian history. The course includes a project assignment in the field. May be concurrently scheduled with course C112D.

Mr. Hovannisian

**215A-215B. Seminar in Ancient History.**

Mr. Chambers, Mr. Mellor

**216A-216B. Seminar in Byzantine History.**

Mr. Vryonis

**217. Sources and Handbooks of Medieval History.** Prerequisite: reading knowledge of German or French. An introduction to types of medieval source materials and the handbooks needed to use them.

Mr. Rouse

**218. Medieval Latin Literary History.** Recommended prerequisite: reading knowledge of Latin and German or French. An examination of aspects of medieval history through the study of paleography, medieval libraries, and the transmission of ancient medieval authors.

Mr. Rouse

**219A. Paleography I.** Prerequisite: reading knowledge of Latin and German or French. A history of the manuscript book from antiquity through the Carolingian renaissance, with emphasis on dating and localization as well as on proficiency in reading.

Mr. Rouse (alternate years)

**219B. Paleography II.** Prerequisite: reading knowledge of Latin and German or French. A 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.

Mr. Rouse (alternate years)

**220A-220B. Seminar in Church and Monarchy in the Middle Ages.** Textual studies and interpretative problems in the constitutional, legal, and intellectual history of the Latin church and of the Western European monarchies, with special attention to the German monarchy, from the 11th to the 14th century.

Mr. Benson

**221A-221B. Seminar in Medieval History.**

Mr. R.J. Burns

**222A-222B. Seminar in Medieval Intellectual History and History of Science.** Selected problems from medieval and early modern philosophy, science, political theory, theology.

Mr. Funkenstein

**225. Colloquium for Entering Graduate Students in Modern European History.** Normally limited to and required of all modern European history graduate students. An introduction to the topics, methods, and historiography of modern European history.

**226A-226B. Seminar in the Italian Renaissance.**

Mr. Martines

**227A-227B. Seminar in the Reformation.**

Mr. Clasen

**229A-229B. Seminar in Early Modern European History.**

Mr. Lossky, Mr. Martines, Mr. Symcox

**230A-230B. Seminar in Modern European History.**

Mr. Loewenberg and the Staff

**231A-231B. Seminar in Modern European Intellectual and Cultural History.**

Mr. Loewenberg, Mr. Weber, Mr. Wohl

**233A-233B. Seminar in Russian History.**

Mr. Rogger

**234A-234B. Seminar in the Modern History of Spain, Portugal, and Italy.**

Ms. Kaplan, Mr. Wohl

**239A-239B. Seminar in English History: Middle Ages.**

**240A-240B. Seminar in English History: Modern History.**

Mr. Fraser

**244A-244B. Seminar in British Empire History.**

Mr. Galbraith

**245. Colloquium in U.S. History.** Normally limited to and required of all entering graduate students in U.S. history. A critical introduction to the historical method, with emphasis on new methodological and conceptual approaches, the use of source materials, and the current state of U.S. historiography.

**246A-246B-246C. Introduction to United States History.** A graduate survey of the significant literature dealing with United States history from the Colonial period to the present. Each course may be taken independently for credit:

**246A.** Colonial Period. Ms. Appleby, Mr. Nash

**246B.** 1790 to 1900.

Mr. Gatell, Mr. Howe, Mr. Saxton

**246C.** 20th Century.

Mr. Coben, Mr. Dallek, Mr. Weiss

**247A-247B. Seminar in Early American History.**

Ms. Appleby, Mr. Nash

**249A-249B. Seminar in Jacksonian America.**

Mr. Gatell

**250A-250B. Seminar in United States History of the Middle 19th Century.**

Mr. Gatell, Mr. Howe

**252A-252B. Seminar in Recent United States History to 1930.**

Mr. Coben, Mr. Hines

**253A-253B. Seminar in Recent United States History since 1930.**

Mr. Hines, Mr. Weiss

**254A-254B. Seminar in United States Social and/or Intellectual History.**

Mr. Howe, Mr. Saxton

**256A-256B. Seminar in American Diplomatic History.**

Mr. Dallek

**257A-257B. Seminar in United States Urban History.**

Mr. Hines, Mr. Monkkenon

**258A-258B. Seminar in Working Class History.**

Mr. Laslett, Mr. Saxton

**259A-259B. Seminar in Social History of Women in the U.S.**

Ms. Sklar

**260A-260B. Seminar in Native American History.**

**261A-261B. Seminar in Afro-American History.** Social and political history of the Afro-American, including emphasis on the development and structure of race relations in America; racial concepts and dilemmas, black and white.

Ms. Creel, Mr. Hill

**262A-262B. Seminar in Chicano History.**

Mr. Gómez-Quíñones

**263A-263B. Seminar in the History of the American West.**

Mr. Hundley



**M264. History of American Education.** (Same as Education M201C.) The aim is to depict the intellectual and social forces impinging on American education from the 1860s to the present and to analyze the relation between these forces and the values, curriculum, structural organization, and functions of education. Mr. S. Cohen

**M265. Latin American Research Resources.** (Same as Latin American Studies M200 and Library and Information Science M225.) The course acquaints students with general and specialized materials in fields concerned with Latin American studies. Library research techniques provide the experience and competency required for future bibliographic and research sophistication as the basis for enhanced research results. Mr. Lauerhass

**266A-266B. Seminar in Colonial Latin American History.** Mr. Lockhart

**267A-267B. Seminar in Latin American History: 19th and 20th Centuries.** Mr. Burr

**M268A-M268B. Seminar in Recent Latin American History.** (Formerly numbered 268A-268B.) (Same as Latin American Studies M268A-M268B.) Seminar, three hours. Reading knowledge of Spanish and Portuguese is normally required. A seminar devoted to selected topics of an interdisciplinary nature. In Progress grading. Mr. Wilkie

**275. Introduction to the Professional Study of African History.** Required of all entering graduate students in African history. Strongly recommended for students with a history concentration in the African Area Studies M.A. program. Source identification, research methodologies, historiographical traditions, historical interpretation, and approaches to teaching are examined.

**276. African Archaeology: Field Techniques (2 to 8 units).** Prerequisite: any introductory course in archaeology and preferably an African history course. A field course on an African excavation to provide the basic skills-reconnaissance, surveying, excavation techniques, conservation, and scientific sampling required by an archaeologist in Africa, together with an introduction to ethnographic survey and oral data collection. Mr. Posnansky

**277. African Archaeology: Data Analysis (2 to 8 units).** Prerequisite or corequisite: course 276. A field course to equip a student to handle finds from excavations. The course involves analysis, description, illustration, and interpretation of an actual archaeological and/or ethnographic collection. Mr. Posnansky

**278A-278B. Seminar in African History.**

**282A-282B-282C. Seminar in Chinese History.** Mr. Farquhar, Mr. Huang

**285A-285B. Seminar in Modern Japanese History.** Mr. Notehelfer

**288A-288B. Seminar in South Asia.** Mr. Wolpert

**289A-289B. Seminar in Southeast Asia.** Mr. SarDesai

**291A-291B. Seminar in Jewish History.** Studies in the intellectual and social history of the Jewish people from ancient times to the modern period. Mr. Funkenstein

**293A-293B. Seminar in the History of Religions.** Mr. Bolle

**295. Theories of Scientific Change.** Historical and philosophical perspectives on science, focusing on the rationality of scientific change and the logic and psychology of scientific discovery. Readings and seminar-style discussions of such authors as Popper, Kuhn, Toulmin, Lakatos, Holton, Buchdahl, Feyereabend, and others. Mr. Westman

**297A-297B. Seminar in the History of Science.** Mr. Westman, Mr. Wise

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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.** 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. Ms. Strenski

**495. The Teaching of History.** Prerequisite: graduate standing. Required of all new teaching assistants. Consists of 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 the 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. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. S/U grading.

**596. Directed Studies (1 to 8 units).** Prerequisites: graduate standing and 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 the 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.

## Honors Collegium

A311 Murphy Hall, 825-1553

The Honors Collegium is a unique and innovative educational alternative designed primarily for students in their freshman and sophomore years. Please refer to "Honors" earlier in this chapter for a complete description of the program.

## Humanities

334D Royce Hall, 825-7650

### Professors

Arnold J. Band, Ph.D. (*Hebrew and Comparative Literature*)

A. R. Braunmuller, Ph.D. (*English*)

Philip Levine, Ph.D. (*Classics*)

Ross P. Shideler, Ph.D. (*Scandinavian and Comparative Literature*), Chair

Pier-Maria Pasinetti, Ph.D., *Emeritus* (*Italian and Comparative Literature*)

### Associate Professor

Albert D. Hutter, Ph.D. (*English*)

### Assistant Professors

Katherine C. King, Ph.D. (*Classics and Comparative Literature*)

Kathleen Komar, Ph.D. (*German and Comparative Literature*)

Lucia Re, Ph.D. (*Italian and Comparative Literature*)

The following courses are made up of selected masterpieces of world literature. They are recommended to satisfy the humanities breadth requirements in the College of Letters and Science.

## Lower Division Courses

**1A. World Literature: Antiquity to Early Middle Ages.** Lecture, three hours; discussion, one hour. Prerequisite: satisfaction of Subject A requirement. Students with credit for course 2A will not receive credit for this course. A study of major texts in world literature, with emphasis on Western civilization. Texts include major works and authors such as the *Iliad* or the *Odyssey*, Greek tragedies, portions of the Bible, Virgil, Petronius, St. Augustine, and other texts such as *Gilgamesh* or *Tristan and Yseult*.

**1B. World Literature: Late Middle Ages to the 17th Century.** Lecture, three hours; discussion, one hour. Prerequisite: satisfaction of Subject A requirement. Students with credit for course 2B will not receive credit for this course. A 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, Calderon, Moliere, and Racine.

**1C. World Literature: Age of Enlightenment to the 20th Century.** Lecture, three hours; discussion, one hour. Prerequisite: satisfaction of Subject A requirement. Students with credit for course 2C will not receive credit for this course. A 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.

**2A. Survey of Literature: Antiquity to Early Middle Ages.** Lecture, two hours; discussion, two hours. Prerequisite: satisfaction of Subject A requirement. Students with credit for course 1A will not receive credit for this course. Fulfills the Letters and Science English Composition requirement. The 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 the *Iliad*, Greek tragedies, the *Aeneid*, Petronius, St. Augustine, or *Tristan and Yseult*.

**2B. Survey of Literature: Late Middle Ages to the 17th Century.** Lecture, two hours; discussion, two hours. Prerequisite: satisfaction of Subject A requirement. Students with credit for course 1B will not receive credit for this course. Fulfills the Letters and Science English Composition requirement. The 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, Calderon, Moliere, and Racine.

**2C. Survey of Literature: Age of Enlightenment to the 20th Century.** Lecture, two hours; discussion, two hours. Prerequisite: satisfaction of Subject A requirement. Students with credit for course 1C will not receive credit for this course. Fulfills the Letters and Science English Composition requirement. The 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.

## Upper Division Courses

**101. The Romantic Dilemma.** Prerequisite: one course from Humanities 1A, 1B, 1C, 2A, 2B, 2C, or English 3, or consent of instructor. The theme of Romantic individualism and rebellion, pursued through literary examples of Romantic hero types (and anti-types) from Rousseau and Goethe to Dostoevsky and Hesse.

**102. Satire.** Prerequisite: one course from Humanities 1A, 1B, 1C, 2A, 2B, 2C, or English 3, or consent of instructor. The changing nature of satire as illustrated by examples of the genre from Horace and Juvenal to Ionesco and Nabokov.

**104. The 20th-Century Continental Novel: Mann and Proust.** Prerequisite: one course from Humanities 1A, 1B, 1C, 2A, 2B, 2C, or English 3, or consent of instructor. An intensive study of *The Magic Mountain* and *The Remembrance of Things Past* as works of art and as expressions of the sense of social and cultural dissolution felt in early 20th-century Europe.

Mr. Pasinetti

**C105. The Comic Spirit.** Prerequisites: upper division standing, literature major. Literary masterpieces, both dramatic and nondramatic, selected to demonstrate the varieties of comic expression. May be concurrently scheduled with Comparative Literature C205. Undergraduates read all works in translation.

Mr. Band

**C107. The Classical Tradition: Epic.** Seminar, three hours. Prerequisites: upper division standing, literature major, consent of instructor. The *Iliad*, the *Odyssey*, the *Aeneid*, the *Gerusalemme Liberata*, and *Paradise Lost* are analyzed both in relation to their contemporary societies and to the literary traditions. Emphasis on how poets build on the work of their predecessors. May be concurrently scheduled with Comparative Literature C207.

Ms. King

**C109. The Crisis of Consciousness in Modern Literature.** 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 the works of Kafka, Rilke, Woolf, Sartre, and Stevens. May be concurrently scheduled with Comparative Literature C209. Undergraduates read all works in translation.

Ms. Komar

**110. Man and His Fictions.** Prerequisite: one course from Humanities 1A, 1B, 1C, 2A, 2B, 2C, or English 3, or consent of instructor. The course explores the art of tale-telling and the nature of narrative. It examines the wisdom or knowledge the tales possess, how the exchange of tales defines and sustains a community, and how a narrator clarifies form and meaning for the audience.

Ms. Komar

**C111. The Classical Tradition: Tragedy.** 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. May be concurrently scheduled with Comparative Literature C211.

Ms. King

**114. The Short Novel.** Prerequisite: one course from Humanities 1A, 1B, 1C, 2A, 2B, 2C, or English 3, or consent of instructor. A study of selected short novels as works of literary art and as relevant intellectual statements. Texts by Melville, Flaubert, Dostoevsky, Kafka, et al.

Mr. Pasinetti

**115. Four Modern Dramatists.** A study of several works by four major modern dramatists, focusing on understanding specific elements in each work and the authors' possible interrelations. Pirandello, Beckett, and Pinter are read; the fourth author is chosen from Ionesco, Giradoux, Cocteau.

Mr. Braunmuller

**116. Man and Society in the Renaissance.** 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*, the *Essays of Montaigne*, *Gargantua and Pantagruel*, *The Praise of Folly*, *Utopia*.

Mr. Allen

**C117. The Mystery Novel.** Prerequisites: upper division standing and literature major, or consent of instructor. A study of mystery and detective fiction in England, France, and the United States. The origin, form, and historical significance of mystery fiction are developed through close readings of selected works. May be concurrently scheduled with Comparative Literature C297. Undergraduates read all works in translation.

Mr. Hutter

**138. Ancient and Medieval Oral Poetry.** Prerequisites: upper division standing, literature major. A study of primary texts believed to be orally composed, their origins, characteristic forms, and function. Readings include such primary texts as the *Odyssey*, *Beowulf*, *The Song of Roland*, and selections of Norse poetry, as well as comparative material such as the *Aeneid*, the Norse sagas, and discussions of modern African and Yugoslavian oral poetry.

**C139. Early Medieval Literature.** Prerequisites: upper division standing, literature major. The course consists of a survey of the Latin and Germanic literatures from the fall of Rome to the beginning of the 12th century. May be concurrently scheduled with Comparative Literature C239. Undergraduates read all works in translation.

Mr. Calder

**C140. Medieval Epics.** Prerequisites: upper division standing, literature major. The seminar considers five medieval epics: *Beowulf*, *El Cid*, *Chanson de Roland*, *Nibelungenlied*, and *Njalssaga*. There are two objectives: first, a critical understanding of each work, and second, an understanding of the nature of epic literature. Assignments consist of an extended seminar paper and short oral reports. May be concurrently scheduled with Comparative Literature C240. Undergraduates read all works in translation.

Mr. Condren

**C141. The Literary Mediation of History in the Renaissance.** Seminar, three hours. Prerequisites: upper division standing, literature major. An analysis of the presence and the treatment of history in the rhetoric of Renaissance authors ranging from the Italian humanists to Machiavelli and Shakespeare. Other authors include Poliziano and Lorenzo de' Medici. May be concurrently scheduled with Comparative Literature C241. Undergraduates read all works in translation.

Ms. Re

**C145. Renaissance Drama.** Prerequisites: upper division standing and literature major, or consent of instructor. The course offers a broad introduction to the subject matter and types of plays in the Renaissance. Historical and literary influences on the plays are considered. Readings include works of such dramatists as Tasso, Machiavelli, Lope de Vega, Racine, Jonson, Shakespeare. May be concurrently scheduled with Comparative Literature C245. Undergraduates read all works in translation.

Mr. Braunmuller

**C168. Romantic Autobiography.** Discussion, three hours. Prerequisites: upper division standing and literature major, or consent of instructor. The course traces the evolution of the autobiography from spiritual (Augustine) and secular (Cellini) sources to the transition in the 18th century which blended features of the epic poem and the quest-romance. Wordsworth's *Prelude* came to represent the best example of this mixture. Major examples of the Romantic autobiography to be studied include Rousseau's *Confessions*, Wordsworth's *Prelude*, and Goethe's *Wilhelm Meister's Apprenticeship*. Later novels that develop and extend the genre include Joyce's *Portrait of the Artist as a Young Man* and Proust's *Swann's Way*. May be concurrently scheduled with Comparative Literature C268. Undergraduates read all works in translation.

Ms. Packer

**C170. The Dream in English and German Romantic Literature.** Lecture, three hours. Prerequisites: upper division standing and literature major, or consent of instructor. A study of the use of the dream as a standard narrative technique in English and German Romantic literature. May be concurrently scheduled with Comparative Literature C270. Undergraduates read all works in translation.

Mr. Burwick

**C172. The Grotesque in Romantic Literature and Art.** Prerequisites: upper division standing and literature major, or consent of instructor. A study of the grotesque in the visual and verbal arts of the Romantic period; interpretation addresses the aesthetics of tragic-comic interaction, the demonic vision, and the satirical sketches of man's abnormality and perversity. May be concurrently scheduled with Comparative Literature C272. Undergraduates read all works in translation.

Mr. Burwick

**C173. Theory and Texts of the Fantastic.** Seminar, three hours. Prerequisites: upper division standing, literature major. An 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 Comparative Literature C273. Undergraduates read all works in translation.

Ms. Re

**C175. The 19th-Century Novel.** Seminar, three hours. Prerequisites: upper division standing, literature major. A comparative study of the 19th-century novel in England and on the continent. Novels are selected so as to allow the seminar to concentrate on a particular tradition or critical problem. May be concurrently scheduled with Comparative Literature C275. Undergraduates read all works in translation.

Mr. Lehan

**C176. Fiction and History.** Seminar, three hours. Prerequisites: upper division standing and literature major, or consent of instructor. The course analyzes the use of historical events, situations, and characters in literary works of the Renaissance and/or the modern period. Texts and individual assignments range from Renaissance historical narratives (the Italian Humanists, Machiavelli) to 19th- and 20th-century novels by authors such as Stendahl, Verga, Tomasi di Lampedusa, Carpentier, and Kundera. Use of fictional methods by historians may also be analyzed. Emphasis is on how aesthetic, ideological, and political factors influence the authors' choice and use of historical material. May be concurrently scheduled with Comparative Literature C276.

Mr. Pasinetti, Ms. Re

**C178. Darwinism and Literature.** (Formerly numbered 178.) Seminar, three hours. Prerequisite: upper division standing or consent of instructor. The course studies the impact of Darwin's theories on European and American literature. While texts include major works in the development of naturalism, such as novels by Zola, Hardy, Crane, or Dreiser and plays by Strindberg and Ibsen, the course moves forward into the continuing influence of other "determinist" and behaviorally oriented theories in works by authors such as Mann, Sartre, Camus, Stevens, and Skinner. May be concurrently scheduled with Comparative Literature C278.

Mr. Shideier

**C180. The Symbolist Tradition in Poetry.** Prerequisites: upper division standing and literature major, or consent of instructor. A study of the symbolist tradition in 19th- and 20th-century English, French, and German poetry. May be concurrently scheduled with Comparative Literature C280. Undergraduates read all works in translation.

Mr. Shideier

**C181. Poetry and Poetics of the Post-Symbolist Period.** Prerequisites: upper division standing and literature major, or consent of instructor. A study of some of the dominant poetic trends and figures in American and European poetry in the first half of the 20th century, including such surrealists as Pound, Eliot, Valery, Rilke, George, and Stevens. May be concurrently scheduled with Comparative Literature C281. Undergraduates read all works in translation.

Ms. Komar, Mr. Shideier

# Indo-European Studies

## (Interdepartmental)

1037 Graduate School of Management, 825-4242

### Professors

Raimo A. Anttila, Ph.D. (*Linguistics*)  
 Henrik Birnbaum, Ph.D. (*Slavic Languages and Literatures*)  
 Patrick K. Ford, Ph.D. (*English, Folklore and Mythology*)  
 Marija Gimbutas, Ph.D. (*Slavic Languages and Literatures, Archaeology*)  
 Bengt T. M. Löfstedt, Ph.D. (*Classics*)  
 Jaan Puhvel, Ph.D. (*Classics, Indo-European Studies*)  
 Hartmut E. F. Scharfe, Ph.D. (*East Asian Languages and Cultures*)  
 Hanns-Peter Schmidt, Ph.D. (*Near Eastern Languages and Cultures*)  
 Alan H. Timberlake, Ph.D. (*Slavic Languages and Literatures*)  
 Donald J. Ward, Ph.D. (*Germanic Languages, Folklore and Mythology*)  
 Terence H. Wilbur, Ph.D. (*Germanic Languages*)

### Assistant Professor

Joseph F. Nagy, Ph.D. (*English*)

## 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.

## Ph.D. Degree

### Admission

Students admitted to graduate standing 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; GSAT scores are not required. Potential applicants may request a brochure by writing to the Indo-European Studies Program, c/o Folklore and Mythology Center, 1037 GSM, University of California, Los Angeles, CA 90024.

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, you 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.

## Foreign Language Requirement

French and German are required, one during the first year. A third language is added only when relevant to your field of specialization. Proficiency in a language may be demonstrated by (1) passing the ETS examination with a score of 600 or better, (2) completing a level five course with a grade of B or better, or (3) passing a departmental reading examination.

## Course Requirements

The course requirements vary among the three major fields of specialization. General requirements for all students regardless of specialization include knowledge of Vedic Sanskrit and Homeric Greek, basic competence in Indo-European linguistics (including Indo-European Studies M150 and 210), mythology (e.g., *Classics* 168), archaeology (including Indo-European Studies 131, 132). Additional requirements by field are as follows:

(1) *Linguistics*: An advanced seminar in comparative grammar, a minimum of four ancient Indo-European languages from different subbranches, and additional units in courses offered by Linguistics (e.g., phonetics, structural linguistics) and related departments. These additional units should be selected in consultation with your adviser.

(2) *Indo-Iranian or Other Specialized Language Area*: An advanced seminar in comparative grammar, a minimum of two ancient Indo-European languages from different subbranches, and additional units in the area of specialization, to be selected in consultation with your adviser.

(3) *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 selected in consultation with your adviser.

## Teaching Experience

Teaching experience is highly desired, but not available within the program and therefore is not required. The program works closely with its constituent departments in an attempt to provide some teaching experience.

## Qualifying Examinations

When you have completed the required coursework, a series of written examinations covering the major and minor fields will be administered. These will 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, will be administered by the doctoral committee. It is intended to probe your grasp of the entire field. Should you fail either the written or oral examinations, the interdepartmental degree committee may allow re-examination. After successful completion of the written and oral examinations, you will be advanced to doctoral candidacy and begin work on the dissertation.

## Final Oral Examination

The final oral examination is designed to allow the committee to evaluate the dissertation within the discipline and within your own specialization. Although it is stated as a requirement, individual circumstances have on occasion dictated waiver of the final oral examination.

## Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Upper Division Courses

**131. European Archaeology: Proto-Civilizations of Europe.** A survey of European cultures from the beginning of the food-producing economy in the 7th Millennium B.C. to the beginning of the Bronze Age in the 3rd Millennium B.C. Mrs. Gimbutas

**132. European Archaeology: The Bronze Age.** Prerequisite: course 131 or consent of instructor. A survey of European cultures from around 3000 B.C. to the period of the destruction of the Mycenaean culture about 1200 B.C. The course covers the Aegean area and the rest of Europe. Mrs. Gimbutas

**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. A survey of the Indo-European languages from ancient to modern times; their relationships and chief characteristics. Mr. Anttila (Sp)

**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. Mr. Anttila (F)

**250A-250B. European Archaeology.** (Formerly numbered M250A-M250B.) 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. Mrs. Gimbutas

**280A-280B. Seminar in 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 Examination (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 in Ancient Near Eastern Archaeology  
261. Practical Field Archaeology  
**Anthropology** 110. World Archaeology  
112. Old Stone Age Archaeology  
115Q. Archaeological Research Techniques  
115R. Strategy of Archaeology  
116P. Laboratory Analysis in 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 in Classical Archaeology: The Aegean Bronze Age  
260. Topics in Ancient Religion  
268. Seminar in Comparative Mythology  
**East Asian Languages and Cultures** 160. Elementary Sanskrit  
161. Intermediate Sanskrit  
162. Advanced Sanskrit  
165. Readings in Sanskrit  
214A-214B. Pali and Prakrits  
221A-221B. Introduction to Panini's Grammar  
247. Selected Readings in Sanskrit Texts  
**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  
**Folklore and Mythology** M112. Survey of Medieval Celtic Literature  
M122. Celtic Mythology  
M126. Baltic and Slavic Folklore and Mythology  
M127. Celtic Folklore  
**German (Germanic Languages)** 230. Survey of Germanic Philology  
231. Gothic  
232. Old High German  
233. Old Saxon  
245B. Germanic Antiquities  
252. Seminar in Historical and Comparative German Linguistics  
**Greek (Classics)** 240A-240B. History of the Greek Language  
242. Greek Dialects and Historical Grammar  
243. Mycenaean Greek  
**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** 100. Introduction to Linguistics  
103. Introduction to General Phonetics  
110. Introduction to Historical Linguistics  
120A, 120B. Linguistic Analysis  
160. History of Linguistics through the 19th Century  
**Old Norse Studies (Germanic Languages)** 140. 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

4256 Bunche Hall, 825-3862

### Scope and Objectives

The Special Undergraduate Program 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 will 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 science in the secondary schools. These students should structure their programs primarily by the preparation requirements of the professional school or teaching credential of their choice.

Courses in management and administration, and in verbal and written communications, will ordinarily increase the career options of students in this program.

## Special Undergraduate Program

### Preparation for the Program

*Required:* Political Science 20, 50, and two courses from 10, 40, 70, 80; History 1A-1B-1C or any three courses from 8A, 8B, 8C, 9A, 9B, 9C, 9D, 10A, 10B; Economics 1 and 2, or 100; Sociology 1 or 101; Anthropology 5 or 22; Geography 3 or 5.

### 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, Field III, Field V, or Field VI.

Other required social science courses include one course from Geography 140, 181, 182A, 182B, 183, 184, 185, 186, 187, 188, 189, 190; one course from Anthropology 171, 173P, 173Q, 174P, 175P, 175Q, 175R, 175S, 176, 177; two courses from Economics 110, 111, 112, 180, 182, 190, 191, 192; two courses from History 116A, 117A, 127A, 127B, 142A, 142B, 148C, 152A, 152B, 168, 186.

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 Portuguese, Italian, Germanic Languages, Near Eastern Languages and Cultures, African Languages, and East Asian Languages and Cultures. Arabic, Chinese, French, German, Japanese, Russian, and Spanish are the languages of widest career utility in international affairs.

### 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 Latin America, Africa, the Atlantic area, the Soviet sphere, East Asia, Southeast Asia, South Asia, or the Middle East.

For further information, contact Vicki Waldman, Political Science Counselor, in the program office.

## **Islamic Studies (Interdepartmental)**

10286 Bunche Hall, 825-1181

The undergraduate major in this discipline is called "Near Eastern Studies." For details, see the program by that name later in this chapter.

### **Scope and Objectives**

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.

### **Master of Arts Degree**

#### **Admission**

In addition to the general University requirements, a Bachelor of Arts degree in Near Eastern Studies or equivalent is required. The interdepartmental degree committee will pass on your application for admission to the program. You are normally expected to have completed the equivalent of Arabic 102A-102B-102C and Iranian 102A-102B-102C or Turkic Languages 103A-103B. In addition, you 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. Deficiencies in any of these prerequisites will have to be removed by taking the appropriate courses without credit toward the advanced degree. No special application form is required.

The Graduate Record Examination is required of graduates of American universities and recommended for overseas applicants. No screening examination is required.

A departmental brochure may be obtained by writing to the G.E. von Grunebaum Center for Near Eastern Studies, 10286 Bunche Hall, UCLA, Los Angeles, CA 90024.

#### **Major Fields or Subdisciplines**

Arabic, Persian, Turkish, history of the Near East, political science, anthropology, sociology, Islamic art.

### **Foreign Language Requirement**

You will be required to show proficiency in either French or German. You are expected to pass the graduate foreign language reading examination (Educational Testing Service) in French or German by the end of your third quarter of residence.

### **Course Requirements**

A minimum of nine courses is required, five of which must be graduate. You must take no fewer than four courses on the appropriate level in the two Near Eastern languages of your choice, and no fewer than five courses selected from the relevant upper division and graduate courses in history, political science, or any of the other fields represented in the program. The selection must be limited to two of these disciplines. The omission of history may be approved only in exceptional cases. Only eight units of 500-series courses may be applied toward the total course requirement, as well as toward the minimum graduate course requirement, providing they are not in the same discipline.

### **Comprehensive Examination Plan**

The thesis plan is not available in this program. You must pass written examinations in two Near Eastern languages and literatures, the history of the Near East, and one other social science. The examinations are constructed by the instructor responsible for each discipline. Reexamination in exceptional cases will be determined by the interdepartmental degree committee. The examiner or examiners will be appointed by the Chair of the interdepartmental degree committee.

### **Ph.D. 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. Those who enter 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. Those who have not done so should make up any deficiencies by taking the appropriate courses without credit toward the degree. No special application form is required, but applications must be accompanied by three letters of recommendation.

The Graduate Record Examination is required of graduates of American universities and recommended for overseas applicants.

A departmental brochure may be obtained by writing to the G.E. von Grunebaum Center for Near Eastern Studies, 10286 Bunche Hall, UCLA, Los Angeles, CA 90024.

#### **Major Fields or Subdisciplines**

Arabic, Persian, Turkish, history, anthropology, sociology, political science, Islamic art.

### **Foreign Language Requirement**

At the beginning of your first quarter in residence, you must present to the Chair of the interdepartmental degree committee a written statement explaining your preparation in one of the two modern languages required by the University (generally French and German). You are expected to pass the graduate foreign language reading examination in both languages by the end of your second year of residence. For work in some fields, a reading knowledge of Italian, Spanish, or Russian may be substituted for one of the above European languages after satisfactory advisement. The Educational Testing Service examination is acceptable.

### **Course Requirements**

If you are entering directly into the Ph.D. program, course requirements are the same as in the M.A. program. Beyond this, you will continue advanced courses in your two Near Eastern languages, in Near Eastern history, and in one of the social sciences, upon specific advisement of the interdepartmental degree committee.

### **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 other social science field (anthropology, political science, sociology). After successfully completing the written examinations, you must pass the University Oral Qualifying Examination in order to be advanced to doctoral candidacy. 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, propositions, etc., are not permitted as alternatives to the written qualifying examinations.

### **Final Oral Examination**

With the approval of the doctoral committee at the time of the oral qualifying examination, the final oral examination may be waived.

### **Candidate in Philosophy Degree**

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

### **Islamic Studies Course List**

- Anthropology** 130. The Study of Culture
- 133P. Social and Psychological Aspects of Myth and Ritual
- 150. Comparative Society
- 156. Comparative Religion
- 161. Development Anthropology
- M163. Women in Culture and Society
- 167. Urban Anthropology
- 176. Cultures of the Middle East
- 215. Field Training in Archaeology

230P. Ethnology  
 230Q. Cultural Anthropology  
 M232P. Cultural Modes of Thought  
 232Q. Myth and Ritual  
 239P. Selected Topics in Field Training in Ethnography  
 239Q. Analysis of Field Data  
 273. Cultures of the Middle East  
**Arabic (Near Eastern Languages)** 102A-102B-102C. Intermediate Arabic  
 103A-103B-103C. Advanced Arabic  
 111A-111B-111C. Spoken Arabic  
 112A-112B-112C. Spoken Egyptian Arabic  
 114A-114B-114C. Spoken Moroccan Arabic  
 130A-130B-130C. Classical Arabic Texts  
 132A-132B-132C. Philosophical Texts  
 140A-140B-140C. Modern Arabic Texts  
 141. Modern Arabic Literature  
 150A-150B. Survey of Arabic Literature in English  
 199. Special Studies in Arabic  
 220A-220B-220C. Islamic Texts  
 230A-230B-230C. Arabic Poetry  
 240A-240B-240C. Arab Historians and Geographers  
 250A-250B-250C. Seminars in 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** 104A. Western Islamic Art  
 104B. Eastern Islamic Art  
 C104C. Problems in Islamic Art  
 105E. Byzantine Art  
 213. Problems in Islamic Art  
**Berber (Near Eastern Languages)** 101A-101B-101C. Elementary Berber  
 102A-102B-102C. Advanced Berber  
 120A-120B-120C. Introduction to Berber Literature  
 130. The Berbers  
 199. Special Studies in Berber Languages  
**Classics** M170A, M170B. Byzantine Civilization  
**French** 121A. Franco-African Literature  
 221A. Introduction to the Study of the French-African Literatures  
 221C. 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. Seminar in Later Greek and Byzantine Literature  
**Hebrew (Near Eastern Languages)** 230. Seminar in 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. Recent History of India and Pakistan  
 190A-190B. History of Southeast Asia  
 204A-204B. Seminar in Near and Middle Eastern History  
 205A-205B. Seminar in Medieval Middle Eastern History  
 206A-206B. Seminar in the Social History of the Middle East  
 209A-209B. Seminar in Ottoman and Modern Turkish History  
 216A-216B. Seminar in Byzantine History  
 596. Directed Studies  
 597. Directed Studies for Graduate Examinations  
 599. Ph.D. Research and Writing  
**Iranian (Near Eastern Languages)** 101A-101B-101C. Elementary Persian  
 102A-102B-102C. Intermediate Persian  
 103A-103B-103C. Advanced Persian  
 140. Contemporary Persian Belle 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  
 211A-211B. Modern Iranian Dialects  
 220A-220B. Classical Persian Texts  
 221. Rumi, the Mystic Poet of Islam  
 250. Seminar in Classical Persian Literature  
 251. Seminar in 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  
 598. M.A. Thesis Research and Preparation  
 599. Ph.D. Dissertation Research and Preparation  
**Jewish Studies (Near Eastern Languages)** 110. Social, Cultural, and Religious Institutions of Judaism  
**Linguistics** 220. Linguistic Areas  
 225. Linguistic Structures  
**Music** 282. Music of Iran and Other Non-Arabic-Speaking Communities  
 284. Music of the Arabic-Speaking Near East  
**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 in Paleogeography  
 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  
 165. Government and Politics in North Africa  
 C250F. Seminars in Regional and Area Political Studies: Middle Eastern Studies  
 250K. Seminars in Regional and Area Political Studies: North African Studies  
**Semitics (Near Eastern Languages)** 215A-215B. Syriac  
**Sociology** 132. Population and Society in the Middle East

133. Comparative Sociology of the Middle East  
 151. Culture and Personality  
 236. Social Change in the Middle East  
 237. Social Stratification in the Middle East  
**Turkic Languages (Near Eastern Languages)**  
 101A-101B. Elementary Turkish  
 102A-102B. Intermediate Turkish  
 103A-103B. Advanced Turkish  
 112A-112B-112C. Uzbek  
 114A-114B-114C. Bashkir  
 160A-160B. Cultural History of the Turks  
 180A-180B-180C. Introduction to Turkic Studies  
 199. Special Studies in Turkic Languages  
 210A-210B-210C. Introduction to Ottoman  
 211. Ottoman Diplomats  
 220A-220B-220C. Chagatay  
 230A-230B-230C. A Historical and Comparative Survey of the Turkic Languages  
 235A-235B. Middle Turkic  
 240A-240B-240C. Advanced Ottoman  
 250A-250B-250C. Islamic Texts in Chagatay  
 280A-280B. Seminar in Modern Turkish Literature  
 290A-290B. Seminar in Classical Turkish Literature  
 596. Directed Individual Study  
 597. Examination Preparation  
 599. Ph.D. Dissertation Research and Preparation

## Italian

340 Royce Hall, 825-1940

### Professors

Franco Betti, Ph.D.  
 Giovanni Cecchetti, Ph.D., Dottore in Lettere  
 Fredi Chiappelli, Dottore in Lettere, Dott. Lett.  
 "Honoris Causa"  
 Margherita Cottino-Jones, Ph.D., Dottore in Lettere  
 Edward F. Tuttle, Ph.D., *Chair*  
 Pier-Maria Pasinetti, Ph.D., Dottore in Lettere,  
*Emeritus*  
 Charles Speroni, Ph.D., *Emeritus*

### Assistant Professor

Lucia Re, Ph.D., Dottore in Lettere

### Lecturers

Mirella Cheeseman, Dottore in Legge  
 Althea Reynolds, B.A.

## 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. While literature courses constitute the bulk of the program, a 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 are available in the department publication, *Programs in Italian Studies*, and in the department office.

### Preparation for the Major

*Required:* Italian 1, 2, 3, 4, 5, 25, or equivalent.

### The Major

*Required:* Fourteen upper division courses out of 16 courses regularly offered every year or every other academic year, including Italian 101, 102A-102B-102C, 113A-113B, 190. An additional seven are to be selected from courses 114A through 122.

Three upper division courses from other departments are strongly recommended, as follows: Classics 143, History 132A or 132B, and English 110. Also recommended: Art 106A, 106B, or 106C; upper division courses in another literature and philosophy and a second language (Latin, French, Spanish, or German, at least on level three). Programs must be organized in consultation with the departmental undergraduate adviser.

### 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, 1257 Murphy Hall.

### Honors Program

Majors with an overall grade-point average of 3.25 and a 3.5 grade-point average or better in Italian are eligible to participate in the honors program. Prerequisites: Italian 102A-102B-102C.

Candidates will select three upper division literature courses in which additional readings are required. In the last quarter 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 quarter of your junior year.

## Bachelor of Arts in Italian and Special Fields

Study programs fulfilling requirements for the major have been developed with the Departments of Anthropology, Art, Classics (Latin), English, French, History, Linguistics, Music, Political Science, and Theater Arts. Consult the Italian undergraduate adviser for requirements in the various fields of specialization.

### Preparation for the Major

*Required:* Italian 1, 2, 3, 4, 5, or equivalent, plus additional required courses associated with the field of specialization selected in consultation with the undergraduate adviser.

### The Major

*Required:* Fourteen upper division courses, seven of which must be in Italian. Italian 102A-102B-102C are required, while the remaining four may be selected from courses 113A through 122 as determined by your area of specialization. The other seven courses are to be selected from offerings in another department, as determined by the field of specialization.

Study Lists each quarter must be planned in consultation with the undergraduate adviser. Courses will be assigned in accordance with your needs as determined by the area of specialization pursued. In certain cases, as many as two courses (eight units) at the graduate level may be applied toward the 14-course minimum requirement.

## Master of Arts Degree

### Admission

Three letters of recommendation should be sent to the Graduate Adviser, Department of Italian, 340 Royce Hall, UCLA, Los Angeles, CA 90024.

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.

### Major Fields or Subdisciplines

The M.A. degree is available with specializations in Italian literature and language.

## Foreign Language Requirement

Reading knowledge of one other foreign language approved by the graduate adviser or successful completion of courses through at least level three is required. This requirement must be met at least one quarter before the comprehensive examination.

## Course Requirements

### *Italian Literature Specialization*

(1) For the thesis plan, nine courses are required, including Italian 200A, 200B, 200C, and 205B. At least six courses must be in the 200 series.

(2) For the comprehensive examination plan, 12 courses are required, including Italian 200A, 200B, 200C, and 205B. The other eight courses must be distributed in three main literary periods — Middle Ages, Renaissance, modern (at least two courses in each period). Three of these courses may be upper division if approved by the graduate adviser. Related courses in other departments, such as History 205A-205B and Art 230, are strongly recommended.

### *Italian Language Specialization*

(1) For the thesis plan, 12 courses are required, including Italian 200A, 200B, 200C, 259A-259B, Latin 232, and Linguistics 100 or 140 or both. At least six courses must be in the 200 series.

(2) For the comprehensive examination plan, 12 courses are required, including Italian 130, 200A, 200B, 200C, 259A-259B, and Latin 232 or Italian 210A or both. The others should be courses on the Middle Ages (seminar on Dante strongly recommended), Renaissance, and modern times.

No 500-series courses may be applied toward the M.A. course requirements.

## Thesis Plan

This plan is recommended for research-oriented students of exceptional merit. If you have completed your first year of graduate work with at least a 3.7 grade-point average, you may be nominated by one of the faculty members of the department for application to the thesis plan.

At this point you must have completed Italian 200A, 200B, 200C, 205B, and at least two other graduate courses in Italian. On acceptance, the guidance committee will help you select three 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 Spring Quarter of your second year of graduate work. After completion of the thesis, you must pass an oral examination testing your knowledge in the field of the thesis and your general competence in Italian literature.

## Comprehensive Examination Plan

In general, the department favors the comprehensive examination plan, which consists of a minimum four-hour written examination to be given before the final examination period of the Fall and Spring Quarters. The examination tests your general competency and does not have major and minor fields of emphasis. After the written examination, you are required to take an oral examination. In case of failure, you may be reexamined once, subject to approval by the examination committee and the Chair of the department.

## Ph.D. Degree

### Admission

Three letters of recommendation from professionals in the field of Italian studies should be sent to the Graduate Adviser, Department of Italian, 340 Royce Hall, UCLA, Los Angeles, CA 90024.

Prerequisite for entering the department's doctoral program is an M.A. from UCLA or from another university in the United States or the equivalent. Students with a master's degree from another institution, or the equivalent, will be required to pass part 1 of the Ph.D. qualifying examination by the end of their third quarter in residence. They should expect to take part 2 of the examination after approximately eight quarters.

Students admitted to the Ph.D. program without the M.A. degree must take the qualifying examination (part 2) at the end of the twelfth quarter in residence, carrying a normal course load.

Students holding the M.A. from UCLA will normally take part 2 of the qualifying examination at the end of their 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 these areas make up the minor fields.

You may choose a major in a literary genre or a minor outside the department, provided that it relates to your major field of specialization and has the department's approval.

### Foreign Language Requirement

This requirement is normally met by passing courses through level three in at least two of the following languages: Latin, French, German, Spanish (subject to departmental approval). A foreign language used to satisfy the requirement for the master's degree in Italian may be applied toward fulfillment of this requirement. The language requirement must be satisfied before taking part 2 of the qualifying examinations, either by Educational Testing Service or departmental examination or by petition for course credit to the Graduate Division.

## Course Requirements

In addition to those required for the master's degree, at least ten other quarter courses, of which no more than two 596 courses may apply, are required. You also will take such courses as your guidance committee may prescribe for the qualifying examinations (such as Italian 596 or 597). All courses from Italian 201 on may be applied toward the Ph.D. degree.

### Qualifying Examinations

The comprehensive examination for the M.A. in Italian at UCLA corresponds to part 1 of the Ph.D. qualifying examinations.

The department also requires both written and oral qualifying examinations (part 2), 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 your major field and a six-hour examination in your minor field. Additionally, a two-hour University Oral Qualifying Examination is required for advancement to doctoral candidacy. A summary of requirements entitled "Regulations for the Ph.D. Examination" is available in the department. In case of failure, you may be reexamined on unanimous approval of the guidance committee, after at least one academic quarter of additional residence.

### Final Oral Examination

After acceptance of the dissertation in its final form, you may be required to take an oral examination which will cover principally the field within which the dissertation falls.

### Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## 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; laboratory, one hour.

Mrs. Cheeseman in charge

**1A. Elementary Italian — Accelerated (8 units).** Lecture, ten hours; laboratory, two hours. Designed for those students having the capacity and desire to learn the language at a much faster pace than normal. Encompasses material ordinarily intended for courses 1 and 2.

Mrs. Cheeseman in charge

**1G. Special Reading Course.** Readings, three hours. Open to graduate students in other fields. The course prepares students for the Graduate Division foreign language reading requirement. S/U grading.

**2. Elementary Italian — Continued.** Lecture, five hours; laboratory, one hour. Prerequisite: course 1 or one year of high school Italian.

Mrs. Cheeseman in charge

**2A. Elementary Italian — Accelerated (Continued) (8 units).** Lecture, ten hours; laboratory, two hours. Prerequisite: course 1A or 2 or two years of high school Italian. Designed for those students having the capacity and desire to learn the language at a much faster pace than normal. Encompasses the material ordinarily intended for courses 3 and 4.

Mrs. Cheeseman in charge

**2G. Special Reading Course.** Readings, three hours. Open to graduate students in other fields. The course prepares students for the Graduate Division foreign language reading requirement.

**3. Elementary Italian — Continued.** Lecture, five hours; laboratory, one hour. Prerequisite: course 2 or two years of high school Italian.

Mrs. Cheeseman in charge

**4. Intermediate Italian.** Lecture, five hours; laboratory, one hour. Prerequisite: course 3 or three years of high school Italian.

Mrs. Cheeseman in charge

**5. Intermediate Italian.** Lecture, five hours; laboratory, one hour. Prerequisite: course 4 or four years of high school Italian.

Mrs. Cheeseman in charge

**8A-8B-8C. Italian Conversation (2 units each).** Prerequisite: consent of instructor. Intended for students who have taken three to six quarters of language instruction and have developed considerable skills in Italian, the courses help students to improve further their spoken proficiency through constant exposure and practice of the language. Each course may be repeated once for credit.

Mrs. Reynolds in charge

**25. Advanced Italian.** Lecture, five hours. Prerequisite: course 5. An advanced grammar and composition course with readings from select literary works.

Mrs. Cheeseman in charge

**42A-42B. Italian Civilization or Italy through the Ages.** Lecture, three hours. A general survey of the history, literature, art, music, and architecture audiovisually illustrated, with emphasis on Italy's cultural contributions to Western civilization. A service course designed to meet the breadth requirements.

**42A. From the Origins through the Renaissance.**

Mrs. Cottino-Jones, Mr. Tuttle

**42B. From the Enlightenment to Modern Italy.**

**46. Italian Cinema and Culture.** (Formerly numbered 46A-46B-46C.) Lecture, two hours; discussion, one hour; film screenings, two to three hours. A survey of the development of Italian cinema and culture from the 1900s to the present through an analysis of the principal aesthetic, literary, artistic, and philosophical movements in Italy as reflected in the works of the nation's filmmakers and writers.

Mrs. Cottino-Jones (F,W,Sp)

**50A-50B. Main Trends in Italian Literature:**

**50A. Italian Literature to the Baroque Period.** A study of selected works of the major writers of the period, including Dante, Petrarch, Boccaccio, Ariosto, Machiavelli, Castiglione, Tasso, Bruno, Galileo, Marino.

**50B. Italian Literature from 1700 to the Present.** A study of selected works by the major writers of the period, including 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 will be conducted in Italian, will all be four-unit courses, and will meet three hours weekly.

**101. Preparation for Advanced Italian Studies.** A course designed to acquaint juniors with the research tools fundamental to the study of Italian culture. Focuses on how to find texts and collateral material, how to utilize bibliographies, dictionaries, encyclopedias, manuals, and periodicals, and how to proceed in literary analysis.

Mr. Chiappelli

**102A-102B-102C. The Italian Cultural Experience.** A study of the cultural development of Italy conducted especially with a view to contemporary situations:

**102A.** From the 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.

**105. Tradition and Innovation in Italian Culture.** Italy's basic social structures and cultural institutions are delineated through their historical development and as they are manifest in the stresses to which the industrializing state currently is subject. Mr. Tuttle

**110A-110B. The Divine Comedy in English.** Lecture, three hours.

**113A-113B. Dante's *Divina Commedia*.** The course focuses on the *Divine Comedy*. Selected readings from the text are integrated with relevant information on scholasticism, classical tradition, medieval literature and poetics, and the sociopolitical structure of Dante's world:

**113A.** A General Introduction and Readings from *Inferno*.

**113B.** Readings from *Purgatorio* and *Paradiso*.

Mr. Cecchetti

**114A-114B. Italian Literature of the Middle Ages.** Lecture, three hours. Emphasis on Stil Novo, Dante's minor works, Petrarch, and Boccaccio.

Mrs. Cottino-Jones, Mr. Tuttle

**116A-116B. Italian Literature of the Renaissance.** Emphasis on Lorenzo de' Medici, Poliziano, Castiglione, Machiavelli, Ariosto, Tasso. Mr. Betti

**118. Italian Literature of the 18th Century.** Emphasis on Goldoni, Parini, Alfieri. Mr. Betti

**119. Italian Literature of the 19th Century.** The course surveys the Romantic age as it expresses values and national aspirations of 19th-century Italy. Emphasis on the innovative approach to poetry as seen in the works of Foscolo and Leopardi and to the sociohistorical novels of Foscolo, Manzoni, and Verga. Mr. Betti

**120. Italian Literature of the 20th Century.** Following a brief introduction to Italian literature after unification of the country, the course concentrates on selected writers seen in their political, social, and artistic contexts. Mr. Cecchetti

**121. Italian Cinema.** A comparative study of specific literary works and their translations into films and of the different techniques in the two forms of expression. Texts include literary works, screenplays, and works on literary and film theory.

**122. The Italian Theater.** The course concentrates on what is alive today (read and performed) in the Italian theater. Texts range from the Renaissance to the present. Mrs. Cottino-Jones

**130. Advanced Grammar and Composition (Teaching).** A study in depth of the idiomatic phenomena of the language from both the grammatical and syntactical points of view. Mrs. Cheeseman

**131. Reading and Reciting.** 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. Mrs. Reynolds

**M140. From Boccaccio to Basile (in English).** (Same as Folklore M140.) Lecture, three hours. A study of the origins and the development of the Italian novella in its themes, in its structure, in its historical context, and in its European ramifications. The course is designed for students in other departments who wish to become acquainted with either the premises or the growth of similar literary genres. It is also intended for students majoring in folklore and mythology, who are given an 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. Mrs. Cottino-Jones

**150. Modern Italian Fiction in Translation.** Lecture, three hours.

**M158. Women in Italian Culture.** (Same as Women's Studies M158.) Lecture, three hours. The course is designed with the intent of examining the role that women have played in Italian society. It concentrates alternatively on the world of the medieval and Renaissance "matriarch" and on the "liberated" women of our times. Historical and political documents and social and religious taboos are presented and discussed, together with other data derived from literature and art. Italian majors are required to read texts in Italian and to prepare papers written in Italian. Mrs. Cottino-Jones, Ms. Re

**190. History of the Italian Language.** Examines the main forces which have shaped literary or standard Italian and specific ways in which the language has evolved. Traces its changing relations with other European languages and surveys the effects wrought by historical events, changes in taste, and altered social functions. Mr. Tuttle

**199. Special Studies (2 to 4 units).** Prerequisite: consent of instructor. A course of independent study for advanced undergraduates who wish to pursue a special research project under the direction and close supervision of a faculty member.

## Graduate Courses

**200A. Readings in Italian Literature.** Lecture, three hours. Prerequisite: graduate standing. The course covers the literature of the generation dominated by the Franciscan movement and proceeds through the culture of Frederick II's court to the three classics of the 14th century — Dante, Petrarch, and Boccaccio. Finally, it encompasses the early humanists, the postclassical generation, and the cultural booming under Lorenzo il Magnifico.

Mr. Chiappelli, Mrs. Cottino-Jones

**200B. Readings in Italian Literature.** Lecture, three hours. Prerequisites: course 200A, graduate standing. The course covers the literature of the High Renaissance of Central Italy in its three most popular genres (lyric poetry, chivalric poem, and theater) and proceeds through the counter-reformist culture, especially of Northern and Southern Italy. Finally, it encompasses the main Enlightenment figures and the cultural evolution stemming from them.

Mr. Betti, Mr. Chiappelli

**200C. Readings in Italian Literature.** Lecture, three hours. Prerequisites: course 200B, graduate standing. The course covers the literature of the Romantic era and proceeds through a study of the literary figures of the Italian "Risorgimento." Finally, it encompasses the various "novecentisti" movements, the literature between the two wars, and the contemporary generation. Mr. Betti, Mr. Cecchetti, Ms. Re

**201. Bibliography and Methods of Research.** Lecture, three hours. Mrs. Cottino-Jones

**205A-205B. Methods of Literary Criticism.** Lecture, three hours:

**205A.** Brief History of Literary Criticism.

**205B.** Discussion of Modern Critical Approaches.

Mrs. Cottino-Jones

**210A-210B-210C. Early Italian Literature.** Lecture, three hours:

**210A.** The Origins of Italian Language and Early Texts. Mr. Tuttle

**210B.** The *Scuola Siciliana* and Early Poetry in Central and Northern Italy. Mr. Tuttle

**210C.** The *Dolce Stil Novo*.

**212A. Theory of Textual Criticism.** Prerequisite: graduate standing. A presentation and discussion of the methods to be employed in the preparation of a critical edition of a medieval and/or Renaissance literary text. Mr. Chiappelli

**214A-214G. Italian Literature of the 14th Century.** Lecture, three hours:

**214A.** Dante's *Vita Nuova* and *Rime*. Mr. Chiappelli

**214B.** *Convivio* and *De Vulgari Eloquentia*.

**214C.** The *Commedia* and the *Monarchia*.

Mr. Chiappelli

**214D.** Petrarcha. Mr. Chiappelli

**214E.** The *Decameron*. Mrs. Cottino-Jones

**214F.** Boccaccio's Other Works. Mrs. Cottino-Jones

**214G.** Sacchetti and Other Prose Writers. Mrs. Cottino-Jones

**215A-215B-215C. Italian Literature of the 15th Century.** Lecture, three hours:

**215A.** Fiction and Other Prose Texts. Mr. Chiappelli

**215B.** Writings of the Humanists.

**215C.** The Age of Lorenzo de' Medici and Poliziano. Mr. Betti

**216A-216E. Italian Literature of the 16th Century.** Lecture, three hours:

**216A.** Machiavelli. Mr. Chiappelli

**216B.** Ariosto.

**216C.** Bembo, Folengo, Aretino, and the Theatre. Mrs. Cottino-Jones

**216D.** Prose (Castiglione, Della Casa, Guicciardini, Cellini).

**216E.** Tasso. Mr. Chiappelli

**217A-217B-217C. Italian Literature of the 17th Century.** Lecture, three hours:

**217A.** Bruno, Campanella, Galilei, Magalotti. Mrs. Cottino-Jones

**217B.** *Commedia dell'arte* and the Theatre. Mrs. Cottino-Jones

**217C.** Marino and Marinisti. Mrs. Cottino-Jones

**218A-218E. Italian Literature of the 18th Century.** Lecture, three hours:

**218A.** The Prose from Vico to Cesarotti. Mr. Betti

**218B.** Essayists and Autobiographical Writers. Mr. Betti

**218C.** The Theater, Especially Metastasio, Goldoni, C. Gozzi. Mr. Pasinetti

**218D.** Parini and the Poets of Arcadia. Mr. Pasinetti

**218E.** Alfieri. Mr. Betti

**219A-219F. Italian Literature of the 19th Century.** Lecture, three hours:

**219A.** Foscolo. Mr. Chiappelli

**219B.** Leopardi. Mr. Cecchetti

**219C.** Manzoni. Mr. Pasinetti

**219D.** Trends in Fiction before Verga. Mr. Betti

**219E.** Verga. Mr. Cecchetti

**219F.** Italian Literature at the Turn of the Century. Mr. Pasinetti

**220A-220B-220C. Italian Literature of the 20th Century.** Lecture, three hours:

**220A.** From D'Annunzio to Futurism and the Early Twenties. Mr. Cecchetti

**220B.** Contemporary Italian Poetry. Mr. Cecchetti

**220C.** Contemporary Italian Fiction. Mr. Pasinetti

**M230A-M230B. Folk Tradition in Italian Literature.** (Same as Folklore M230A-M230B.) Lecture, two hours.

**250A-250D. Seminar on Dante.** Seminar, three hours. Mr. Chiappelli

**251. Seminar on Petrarch.** Seminar, three hours. Mr. Chiappelli

**252. Seminar on Boccaccio.** Seminar, three hours. Mrs. Cottino-Jones

**253A-253B-253C. Seminar on Chivalric Poetry in Italy.** Seminar, three hours. The relationship between the genre and its French medieval sources, with a study of its evolution in Italy through Pulci, Boiardo, Ariosto, and Tasso. Mrs. Cottino-Jones

**254. Seminar on Machiavelli.** Seminar, three hours. Mr. Chiappelli

**255A-255B. Seminar on the Baroque.** Seminar, three hours. Mrs. Cottino-Jones

**256A-256B. Seminar on the 18th Century.** Seminar, three hours. Mr. Pasinetti

**257A-257B. Seminar on Romanticism.** Seminar, three hours. Mr. Pasinetti

**258A-258B. Seminar on Contemporary Italian Literature.** Seminar, three hours. Mr. Cecchetti

**259A-259B-259C. Studies in the History of Italian Language:**

**259A.** History of the Italian Language. Prerequisite: graduate standing. A historical survey of the development of the language from medieval times to the unification of the country (1861). *Questione della lingua*, general acceptance of Florentine speech, and its evolution into the national language. Mr. Tuttle

**259B.** The Structure of Modern Italian. Prerequisite: graduate standing. Various tendencies in modern and contemporary Italian. Foreign influences in today's Italian language. Relationship between the national language and the various dialects. Mr. Tuttle

**259C.** Italian Dialectology. The historical differentiation of the Italian dialects is considered in its areal dimension. Specific geolinguistic problems and solutions illustrate the growth of the discipline up to its present merging with sociolinguistics as Italian dialects become more vertically defined. Mr. Tuttle

**298. Variable Topics in Italian Studies.** Lecture, three hours; discussion, one hour. Prerequisite: graduate standing or consent of instructor. Seminar course focusing on themes and issues outside the uniquely Italian literature topics covered in regular departmental graduate courses.

**370. Problems and Methods in the Teaching of Italian.** Lecture, two hours. Mrs. Cheeseman

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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. The Teaching of Italian at the 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. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. S/U grading.

**596. Directed Individual Studies (4 to 8 units).** May be repeated twice. S/U grading.

**597. Preparation for Comprehensive Examinations (4 to 8 units).** S/U grading.

**599. Ph.D. Research and Writing (4 to 8 units).** May be repeated. S/U grading.

## Kinesiology

2834 Slichter Hall, 825-3891

### Professors

R. James Barnard, Ph.D.  
Camille Brown, Ed.D.  
Bryant J. Cratty, Ed.D.  
V. Reggie Edgerton, Ph.D.  
Glen H. Egstrom, Ph.D.  
Gerald W. Gardner, Ph.D., *Vice Chair*  
Louis J. Goldberg, D.D.S., Ph.D.  
Jack F. Keogh, Ed.D.  
Richard A. Schmidt, Ph.D.  
Judith L. Smith, Ph.D., *Chair*  
Serena E. Arnold, Ed.D., *Emeritus*  
Donald T. Handy, Ed.D., *Emeritus*  
Valerie V. Hunt, Ed.D., *Emeritus*  
Wayne W. Massey, Ph.D., *Emeritus*  
Ben W. Miller, Ph.D., *Emeritus*  
Norman P. Miller, Ed.D., *Emeritus*  
Laurence E. Morehouse, Ph.D., *Emeritus*  
Raymond A. Snyder, Ed.D., *Emeritus*

### Associate Professors

Robert J. Gregor, Ph.D.  
Tara K. Scanlan, Ph.D.  
Ronald F. Zernicke, Ph.D.  
Marjorie E. Latchaw, Ph.D., *Emeritus*

### Assistant Professors

Scott H. Chandler, Ph.D. (*Neuroscience*)  
Diane Shapiro, Ph.D.  
Arthur C. Vailas, Ph.D.

### Lecturer

Dorothy Phillips, M.S.

### Adjunct and Visiting Assistant Professors

Joan L. Duda, Ph.D., *Visiting*  
Glenn G. Gaesser, Ph.D., *Visiting*  
Alan J. Garfinkel, Ph.D., *Adjunct*  
Michael T. Mahler, Ph.D., *Adjunct*

## Scope and Objectives

Kinesiology is the study of the biochemical, morphological, and general physiological responses of the human to exercise and environmental conditions; the description of movement and the neuromuscular and biomechanical determinants of motor performance; and the development, acquisition, and modification of motor performance. The purpose of this study is intended to develop and integrate principles and concepts of human movement.

## Bachelor of Science Degree

### Pre-Kinesiology Major

All students intending to major in kinesiology are identified as pre-kinesiology majors until the premajor requirements have been satisfied. Students must complete all premajor courses and petition for major standing by the time they attain 120 units and prior to enrollment in upper division kinesiology courses.

The pre-kinesiology major requirements are Kinesiology 12, 14; Chemistry 11A, and 15/15L or 23; Biology 5 or 7; Physics 3A and 3B

(or 6A and 6B, or 8A and 8C); one introductory statistics course; Psychology 10; and an additional introductory course from one of the following departments: Anthropology, Psychology, or Sociology.

Premajor courses outside the department may be taken for a letter grade or on a P/NP basis; Kinesiology 12 and 14 must be taken for a letter grade (certain certification and graduate programs also require letter grades for courses). All premajor courses must be passed with a grade of C- or better or a P and must be completed with an overall grade-point average of 2.5 or better. Repetition of more than one premajor course in which a grade of D, F, or NP was received or repetition of any course more than once may result in dismissal from the premajor.

In addition to the preparation courses required in the premajor, additional courses are strongly recommended or required as prerequisites for some upper division courses.

After completing the premajor courses, you must petition for admission into the kinesiology major. Petitions are initiated through the Student Affairs Office in 2834 Slichter Hall.

If you are in the kinesiology major or premajor, you must confer with the departmental counselor on a regular basis. If you are interested in this major and are transferring from another college or university, you should consult with the departmental counselor at least six months prior to the expected enrollment date at UCLA. Call the Student Affairs Office for an appointment.

### The Major

**Required Core Courses:** Kinesiology 120, 122, 124, 126.

A total of seven upper division electives (28 units) is required. Although all seven courses may be taken in kinesiology, five upper division courses (20 units) must be taken in the department. Courses 193, 196A-196B, and 400-level courses may not be applied toward this requirement. One or two of the seven courses (up to eight units) may be taken in other departments related to your course of study. A list of approved extra-departmental courses is available in the Student Affairs Office.

A C average must be maintained in all upper division courses taken in the department. Repetition of more than one required core course in which a grade of D or F was received or repetition of any core course more than once may result in dismissal from the major. All upper division courses required for the major (including extra-departmental electives) must be taken for a letter grade.

### 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 3.5 GPA in upper division kinesiology courses, completion of four upper division kinesiology courses, and identification of a sponsoring faculty adviser. After completion of all requirements and with the recommendation of the faculty adviser, the undergraduate affairs committee will confer departmental honors at graduation.

### Preparation for Graduate Study

Undergraduate students who plan to do doctoral studies in kinesiology are advised to complete Mathematics 3A and 3B. Students who wish to pursue doctoral studies in biomechanics must complete two full years of calculus. Students interested in graduate study (master's degree or Ph.D.) in areas of physiological kinesiology must complete two full years of chemistry (11A, 11B/11BL, 11C/11CL, 21, 23, 25). Consult the Student Affairs Office for additional information.

### Graduate Study

The department offers Master of Science and Doctor of Philosophy degrees in the following fields:

- (1) Exercise physiology — cardiovascular adaptations of exercise, environmental factors influencing work capacity, neuromuscular and metabolic adaptations to exercise, and neuro-motor control.
- (2) Biomechanical determinants of motor performance.
- (3) Motor control, perceptual motor development, and social/psychological determinants of human motor performance.

When applying for graduate work, you should specify an interest in one of these general fields.

### Admission

Applicants for graduate study are expected to have completed an undergraduate degree in kinesiology or the equivalent as outlined below under the master's and doctoral programs. 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) specific courses in the department to be taken and one or two departmental faculty members whose research area parallels the study interest.

A list 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.

Aptitude tests, including the Graduate Record Examination or Miller's Analogies, are not required, but may be submitted for consideration.

Applications for all quarters must be submitted by Fall Quarter deadlines, since applications for all quarters are reviewed only in January/February each year.

### Master of Science Degree

Applicants without an undergraduate degree in kinesiology will receive serious consideration, particularly if undergraduate or other experiences provide a strong relationship to kinesiology. However, applicants are expected to complete minimum undergraduate preparation prior to graduate work. Completion of course deficiencies may take as much as an additional year of coursework, which may not be applied toward the master's degree. Required undergraduate preparation is equivalent to the following: (1) four required courses selected from cellular biology, inorganic chemistry, organic chemistry, introductory psychology, physics (mechanics), physics (electricity), calculus (differential), and calculus (integral), (2) one course each in statistics, human anatomy, and human physiology required for the B.S. degree in Kinesiology, (3) the four kinesiology core courses required for the B.S. degree and their laboratories, and (4) one elective from the proposed area of graduate study. Additionally, applicants in the field of exercise physiology should have completed one year of inorganic chemistry, one year of organic chemistry/biochemistry, and two quarters of calculus.

### Course Requirements

The Master of Science in Kinesiology requires nine courses: five graduate-level kinesiology courses; two courses from a related field; one second-level statistics or research design course; one other course from either kinesiology or a related field.

A minimum of six of the nine courses must be graduate-level (200) courses, toward which one 596 course may be applied. Lists of approved related field and statistics or research design courses may be obtained from the department.

A total of eight units of Kinesiology 596 may be taken for credit; only one course (four units) may be applied toward the minimum course requirement for the master's degree. 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.

### Thesis Plan

Students who elect the thesis plan for the master's degree must report the results of an original research investigation. Under the guidance of the thesis committee, you must propose a problem area or outline of study,

conduct original research in a specific area, and report the results. With committee approval, you may submit either a thesis manuscript or a manuscript suitable for publication.

### Comprehensive Examination Plan

Students who elect this plan 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.

If you fail the comprehensive examination, you may not repeat it until the following quarter. Only one repetition is allowed.

### Ph.D. Degree

Doctoral students are expected to have the basic preparation coursework in kinesiology required of master's students. Six of the eight preparation courses required for the M.S. are required of doctoral students. You must show a solid educational background in one of three general fields of kinesiology, and undergraduate and prior graduate work will be evaluated in terms of your declared field of interest.

### Major Fields or Subdisciplines

From the three general content fields of the department's instructional and research programs, eight *areas of concentration* have been identified: (1) cardiorespiratory adaptations to exercise; (2) environmental factors influencing work capacity; (3) metabolic aspects of exercise; (4) neuromuscular adaptations to exercise; (5) biomechanics; (6) movement development; (7) movement performance and acquisition; (8) neural control of movement.

You will select one of the eight areas of concentration as a major and two areas as minors. These areas are expected to relate to your proposed dissertation problem.

### Course Requirements

Fourteen courses are specified for the doctoral degree, some of which may be satisfied by prior graduate work. Selection of all courses must be approved by the guidance committee and will be determined in part by the selection of major and minor areas of concentration.

A total of eight departmental courses is required, to be selected from Kinesiology 206, 207, 208, 209, 211, 212, 221, 230A, 230B, 235A, 235B, 240, 241, M243, 250, C253, C256, 260, 262, 272, 273, C278, 291A, 291B, 291C, 292A, 292B, 292C, 293A, 293B, 293C, 294A, 294B, 294C, 295A, 295B, 295C, 297A, 297B, 297C. Two of the eight courses must be

seminars. One 596 course may be applied as a nonseminar elective.

A minimum of four courses or 16 units in a related field outside the department is required. An approved list of courses in anatomy, biological chemistry, biology, biomathematics, education, engineering, neuroscience, pharmacology, physiology, psychology, public health, and radiological sciences is maintained by the department. Two department-approved advanced statistics courses are also required.

Each student must complete one foreign language competency test (scoring 500 or better on an Educational Testing Service Graduate Foreign Language Test) or demonstrate alternate competencies by completing courses in electronics, computer programming, or advanced statistics and research design.

### First-Year Doctoral Review

After completion of three quarters of coursework, the graduate affairs committee will conduct a doctoral review to determine whether you (1) continue in the doctoral program, (2) enter the master's program, or (3) discontinue graduate study in the department. The review must be completed by the end of the fourth quarter of graduate work as a doctoral student.

### Teaching Experience

Each candidate will serve in an instructional capacity for a minimum of two quarters. All teaching evaluations will become a permanent part of your departmental record.

### Qualifying Examinations

Each doctoral student must take three written qualifying examinations: one in a major area and one in each of two minor areas. Written qualifying examinations may be taken when the student and guidance committee consider appropriate. These examinations, administered once per academic quarter, will be scored (1) passed at the Ph.D. level of achievement, (2) passed at the master's level of achievement, or (3) failed. To continue in the doctoral program, you must pass each examination at the Ph.D. level of achievement. If you fail to do so, you may (1) complete the master's degree, (2) discontinue graduate work in the department, or (3) reschedule the area examinations once at the discretion of the guidance committee.

After successfully passing the departmental written qualifying examinations, a University Oral Qualifying Examination will be conducted by the doctoral committee. Normally, the examination will be held the quarter following the completion of written examinations, all coursework, and two quarters of research work with your major professor. If you do not pass, the examination may be rescheduled at the discretion of the doctoral committee.

After advancement to candidacy, you must complete and submit a dissertation which meets the approval of the doctoral committee.

### Final Oral Examination

A final oral examination is generally required, although the members of the doctoral committee who are to approve the dissertation have the option to waive it in exceptional cases. The major emphasis in this examination will be a defense of the dissertation.

### Lower Division Courses

**12. Introduction to Human Physiology (6 units).** Lecture, five hours; laboratory, three hours. Prerequisites: Biology 5 or 7, Chemistry 15 and 15L or 23, Physics 3B. An introduction to human physiology. Mr. Chandler, Mr. Vailas (W,Sp)

**13. Introduction to Human Anatomy (6 units).** Lecture, four hours; laboratory, four hours. Not intended for kinesiology majors; a combination of courses 13 and 14 is equivalent to nine units. A structural survey of the human body, including the skeletomuscular, nervous, circulatory, respiratory, digestive, and genitourinary systems. Laboratory includes examination of human cadaver specimens. Ms. Phillips (W)

**14. Human Neuromuscular Anatomy (6 units).** Lecture, four hours; laboratory, four hours. A thorough study of the skeletal, articular, muscular, and nervous systems. Special emphasis on relating these body structures to human movement capabilities. Laboratory includes examination of prosected human cadaver specimens. Ms. Phillips (F,Sp)

### Upper Division Courses

**105. Movement Taxonomy and Composition.** Lecture, three hours; laboratory, two hours. Prerequisites: course 14, upper division standing. Clarification and organization of movement concepts through the study of definition, classification, division, and composition of human movement. Ms. Brown

**106. Theories of Kinesiology.** Prerequisite: upper division standing. A study of ethical, logical, and aesthetic valuing in human movement and human development, with special consideration to traditional and modern approaches. Ms. Brown (F)

**115. Aquatic Kinesiology.** Lecture, three hours; laboratory, two hours. Prerequisite: course 124. A study of man's adaptation to the aquatic environment. Mr. Egstrom (F,Sp)

**116. Exercise and Cardiovascular Function.** Prerequisites: courses 120, 122, 124, 126. A consideration of the acute and chronic effects of exercise in the diagnosis, prevention, and treatment of cardiovascular disorders and physical fitness. Mr. Barnard, Mr. Gardner (Sp)

**117. Conditioning for Maximum Performance.** Prerequisite: course 124. Study of factors and conditions accelerating and retarding levels of performance and work under various physiological and environmental conditions. Mr. Egstrom, Mr. Gaesser (W)

**118. Cellular Dynamics of Exercise.** Prerequisites: courses 124, 126. Cellular responses to acute and chronic exercise. Mr. Gaesser, Mr. Vailas (F,Sp)

**120. Behavioral Bases of Movement (6 units).** Lecture, four hours; laboratory, three hours. Prerequisite: completion of premajor coursework. An examination of motor performance and motor learning and the influence of selected psychological variables on human movement. Ms. Duda, Ms. Scanlan, Mr. Schmidt, Ms. Shapiro (F,Sp)

**122. Biomechanical Bases of Movement (6 units).** Lecture, four hours; laboratory, three hours. Prerequisite: completion of premajor coursework. Kinematic and kinetic principles underlying human movement, focusing on the human neuromuscular and skeletal systems. Mr. Gregor, Mr. Zernicke (W)

**124. Cardiorespiratory Bases and Environmental Factors Affecting Movement (6 units).** Lecture, four hours; laboratory, three hours. Prerequisite: completion of premajor coursework. Response of the cardiovascular and respiratory systems to acute and chronic exercise, environmental stress, and adaptation. Mr. Barnard, Mr. Egstrom, Mr. Gardner (W)

**126. Neuromuscular and Metabolic Bases of Movement (6 units).** Lecture, four hours; laboratory, three hours. Prerequisite: completion of premajor coursework. Metabolic, muscular, and neural processes underlying movement and adaptation to exercise. Mr. Chandler, Mr. Edgerton, Ms. Smith (F,Sp)

**132. Biomechanics of Musculoskeletal Injury.** Prerequisites: course 122, consent of instructor. Anatomical, physiological, and mechanical characteristics of cartilaginous, fibrous, and bony tissues are examined in normal and abnormal stress situations. Connective tissue growth processes, normal physiology, and repair mechanisms are analyzed in conjunction with musculoskeletal injuries and effects of exercise and physical activity. Mr. Zernicke (W)

**134. Electromyographic Assessment.** (Formerly numbered 134A.) Lecture, two hours; laboratory, three hours. Prerequisite: course 122. Techniques of electromyographic analysis combining theoretical aspects with laboratory experiences. Mr. Gregor

**139. Dissection Anatomy.** Lecture, two hours; laboratory, six hours. Prerequisites: course 122, consent of instructor. Study and dissection of upper and lower extremities of human cadavers; dissection of thorax and abdomen limited to musculature and neurovascular supply. (F,Sp)

**140. Mechanisms of Neuromuscular Control.** Prerequisite: course 126. Recommended: Psychology 15 or 115. Advanced topics in the neurophysiology of the sensorimotor systems. Mr. Chandler, Ms. Smith (W)

**C153. Acquisition of Motor Skills.** Prerequisite: course 120. An investigation into the principles of the acquisition of motor skills, such as those applicable to industry, musical performance, or sport. Major topic areas include methodological considerations, the structure of practice sessions, feedback and knowledge of results, theories of motor learning, and retention of skills. May be concurrently scheduled with course C253. Mr. Schmidt, Ms. Shapiro

**C156. Motor Behavior and Motor Control.** Prerequisite: course 120. An analysis of primarily human movement behavior and control, with emphasis on a behavioral level of analysis. Topic areas include methodological issues, open- and closed-loop control, and individual differences. May be concurrently scheduled with course C256. Mr. Schmidt, Ms. Shapiro (Sp)

**160. Human Movement Development.** Prerequisite: course 120. Movement development throughout life, with emphasis on individual and societal determinants. Mr. Cratty, Mr. Keogh (F,W)

**165. Perceptual Motor Education.** Prerequisites: courses 120, 160. Movement problems of the minimally-neurologically handicapped, with emphasis on the clumsy child syndrome. Mr. Cratty, Mr. Keogh (W)

**C178. Group Dynamics in Sport.** (Formerly numbered 178.) Prerequisite: course 120 or consent of instructor. Examination of group dynamics in sport. Topics include group productivity, group structure, leadership, motivational factors, cohesion, conflict. May be concurrently scheduled with course C278. Mr. Cratty, Ms. Scanlan (F)



**191A-191Z. Proseminars in Kinesiology.** Prerequisites: upper division standing and consent of instructor. Limited to 15 students. Advanced study of special topics. May be repeated for credit with topic change.

**193. Field Studies in Kinesiology (2 units).** Lecture, one hour; fieldwork, six hours. Prerequisites: courses 120, 122, 124, 126, or equivalent, and consent of instructor via course application. Supervised field studies in specific careers related to kinesiology. May be repeated once but may not be applied toward the major. P/NP grading.

Mr. Gardner and the Staff (F,W,Sp)

**196A-196B. Laboratory Practicum in Kinesiology (2 units each).** Laboratory, four hours. Prerequisites or corequisites: courses 139 (for 196A) and 119 (for 196B) and consent of instructor. Supervised practicum and training for advanced students who serve as undergraduate assistants in the basic anatomy or physiology courses in the preparation of laboratory materials and innovative projects. May not be applied toward the B.S. degree requirements.

**197A-197Z. Variable Topics in Kinesiology.** Prerequisite: consent of instructor. A variable topics course which covers specific subjects of special interest to undergraduate students. Eight units may be applied toward the B.S. degree requirements.

**199A-199ZZ. Special Studies in Kinesiology (2 or 4 units).** (Formerly numbered 199.) Prerequisites: kinesiology major with advanced junior standing and a 3.0 GPA in the major, or senior standing, and consent of instructor and department Chair. Directed independent research with a faculty member (identified in course title by two initials). A course application (available in 2834 Slichter Hall) must be submitted to the Chair on or before the first day of class. A total of eight units of 199 and 199H may be applied toward the B.S. degree requirements.

**199HA-199HZZ. Honors Thesis (4 or 8 units).** (Formerly numbered 199H.) Prerequisite: honors program standing. Directed independent research for departmental honors with a faculty member (identified in course title by two initials). A course application (available in 2834 Slichter Hall) must be submitted to the department Chair on or before the first day of class. A total of eight units of 199 and 199H may be applied toward the B.S. degree requirements.

## Graduate Courses

**206. Metabolism of Organ Systems Affected by Exercise.** Prerequisite: Chemistry 23. The course focuses on the key regulatory mechanisms of metabolism involved in the exercise response and adaptation.

Mr. Gaesser, Mr. Vailas

**207. Respiratory Function during Exercise.** (Formerly numbered 210A.) Prerequisite: course 124. Topics include the acute and chronic effects of exercise on pulmonary gas exchange, gas transport and ventilatory control, and limiting factors to aerobic function.

Mr. Gardner (F)

**208. Neuromuscular and Metabolic Factors in Exercise.** (Formerly numbered 210B.) Prerequisite: course 118 or consent of instructor. Fundamental aspects of skeletal muscle contraction and metabolic demands under various exercise and training conditions, including neural and endocrine mechanisms potentially involved in inducing specific training effects on skeletal muscle, liver, kidney, gastrointestinal tract, and brain.

Mr. Edgerton

**209. Environmental Factors in Exercise.** (Formerly numbered 210C.) Prerequisites: courses 122, 124, and 126, or consent of instructor. Environmental pressure of high altitude and underwater diving, as well as temperature factors, as they affect work performance; adaptation to unusual environments.

Mr. Egstrom

**211. Exercise Cardiovascular Physiology.** Prerequisite: Physiology 101. Attention to cardiovascular adaptations to acute exercise as well as adaptations associated with regular exercise training.

Mr. Barnard (F)

**212. Cardiovascular Research Techniques.** Lecture, one hour; laboratory, four hours. Prerequisites: course 211 and consent of instructor. Course provides experience in working with experimental animals, in conducting surgery, and in understanding the use of flow meters, radioactive microspheres, pressure transducers, and other techniques commonly used in cardiovascular research.

Mr. Barnard (Sp)

**221. Underwater Kinesiology.** Prerequisites: courses 122 and 124, or consent of instructor. Biomechanical, physiological, methodological, and behavioral limitations to underwater activities.

Mr. Egstrom

**230A. Muscle Dynamics.** Prerequisite: course 122. Recommended: course 134. 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.

Mr. Gregor

**230B. Musculoskeletal Mechanics.** Prerequisites: course 122, Mathematics 3A, 3B. Mechanical parameters of the moving human musculoskeletal system, including the use of cinematographic, force platform, and digital computer techniques. Topics include biostatistics, biodynamics, and empirical data modeling.

Mr. Zernicke (Sp)

**235A-235B. Dynamical Systems Modeling (2 units, 4 units).** Prerequisite: consent of instructor. Concepts of dynamical systems as applied to systems studied by biomechanics, motor control, and behavioral theories. Six units may be taken for credit; however, only four units may be applied toward the minimum graduate course requirement. In Progress grading.

Mr. Garfinkel

**240. Neural Systems for Motor Control.** Prerequisites: course 140 and Psychology 115 (or equivalent). Proprioception, the skeletomotor and fusimotor systems and their control by spinal reflexes and supraspinal centers, including the cerebellum, basal ganglia, and cerebral cortices.

Ms. Smith (W)

**241. Theories of Voluntary Motor Control.** Prerequisites: courses 240 and 250. Exploration and discussion of neural control system for voluntary movement, including alpha-gamma linkage and closed versus open loops. Some attention to neural models for motor learning and memory.

Ms. Shapiro, Ms. Smith

**M243. Brainstem Control of Rhythmical Movements.** (Same as Anatomy M226; lecture is the same as Oral Biology 207, which is 2 units only.) Lecture, two hours; discussion, two hours. Discussion of the central nervous system mechanisms which coordinate and control the contraction patterns of the muscles which are involved in behaviors such as sucking, chewing, swallowing, speech, respiration, and locomotion. Emphasis on the interaction among brainstem reflexes, pattern generators, and "voluntary" control centers.

Mr. Chandler, Mr. Goldberg

**250. Behavioral Approach to Motor Control.** Prerequisites: course 120, consent of instructor. An information processing approach to skill acquisition and performance. Particular emphasis on current theories of motor control from the behavioral literature.

Ms. Shapiro (W)

**C253. Acquisition of Motor Skills.** Prerequisite: course 120. An investigation into the principles of the acquisition of motor skills, such as those applicable to industry, musical performance, or sport. Major topic areas include methodological considerations, the structure of practice sessions, feedback and knowledge of results, theories of motor learning, and retention of skills. May be concurrently scheduled with course C153.

Mr. Schmidt, Ms. Shapiro

**C256. Motor Behavior and Motor Control.** Prerequisite: course 120. An analysis of primarily human movement behavior and control, with emphasis on a behavioral level of analysis. Topic areas include methodological issues, open- and closed-loop control, and individual differences. May be concurrently scheduled with course C156.

Mr. Schmidt, Ms. Shapiro (Sp)

**260. Motor Development.** Prerequisite: course 160. Critical analysis of behavioral approaches in the formulation of motor development theory.

Mr. Keogh

**262. Movement Disorders in Children.** Prerequisite: course 160 or 165 or consent of instructor. Current research in developmental and behavioral aspects of movement disorders in children. Topics include early identification and intervention, perceptual and cognitive relationships, and evaluation of movement training programs.

Mr. Cratty, Mr. Keogh

**272. Motivation in Movement Contexts.** Prerequisites: course 120, one course in psychology, and/or consent of instructor. Examination of the social, cultural, and psychological antecedents of achievement behavior in movement contexts. Current theories of achievement motivation and related research and pertinent issues specific to physical activity are discussed; methodologies and motivation intervention techniques are reviewed. Specific attention to sex, age, and environment-related influences on motivation and achievement patterns.

Ms. Duda, Ms. Scanlan

**273. Social Psychological Aspects of Competitive Youth Sport.** Prerequisite: course 120 or consent of instructor. Research is reviewed concerning the 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.

Ms. Duda, Ms. Scanlan

**C278. Group Dynamics in Sport.** Prerequisite: course 120 or consent of instructor. Examination of group dynamics in sport. Topics include group productivity, group structure, leadership, motivational factors, cohesion, conflict. May be concurrently scheduled with course C178.

Mr. Cratty, Ms. Scanlan (F)

**290. Research Issues in Kinesiology (2 units).** Seminar. Prerequisite: consent of instructor. Discussion of current research issues. Topics are selected by participants in the class. Two 290 courses may be used to satisfy one seminar requirement for the graduate program.

**291A-291B-291C. Seminars in Cardiorespiratory Function and Adaptation (2 to 4 units each).** Prerequisites: courses 207 and 208, or consent of instructor. Selected topics on cardiorespiratory function and adaptation. Students are required to present a two-hour seminar.

**292A-292B-292C. Seminars in Biomechanics (2 to 4 units each).** Prerequisites: courses 230A, 230B, and consent of instructors. Selected topics in biomechanics of movement. Students are required to present a two-hour seminar.

**293A-293B-293C. Seminars in Musculoskeletal Function and Adaptation (2 to 4 units each).** Prerequisites: courses 118 and 208, or consent of instructor. Selected topics on the muscular determinants of movement, the metabolic aspects of exercise, and the mechanics of connective tissue. Students are required to present a two-hour seminar.

**294A-294B-294C. Seminars in Neural Control of Movement (2 to 4 units each).** Prerequisites: courses 140 and either 240 or M243. Selected topics on the neural determinants of movement behavior. Students are required to present a two-hour seminar.

**295A-295B-295C. Seminars in Movement Performance and Learning (2 to 4 units each).** Prerequisites: courses 250 or C253 and C256, or consent of instructor. Selected topics on current issues in acquisition and control of human movement. Students are required to present a two-hour seminar.

**297A-297B-297C. Seminars in Social Psychological Aspects of Human Movement (2 to 4 units each).** Prerequisite: course 272 or 273 or consent of instructor. Selected topics on current issues in the social psychological aspects of human movement. Students are required to present a two-hour seminar.

Ms. Duda, Ms. Scanlan

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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 Kinesiology (2 units).** Prerequisite: consent of instructor. Required of all teaching assistants. Supervised practicum in teaching laboratory courses in kinesiology; material preparation and use of teaching aids. May not be applied toward degree objectives. 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. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. S/U grading.

**596. Individual Studies for Graduate Students (2 to 8 units).** A petition signed by the faculty sponsor, graduate adviser, and graduate affairs committee chair must be submitted prior to the second week of class. Eight units may be taken for credit; however, only four units may be applied toward the minimum of five graduate courses required for the M.S. Eight units may be applied toward the eight kinesiology courses required for the Ph.D.

**597. Preparation for M.S. Comprehensive Examination or Ph.D. Qualifying Examination (2 to 16 units).** To be arranged with faculty member serving as the student's comprehensive examination chair or doctoral committee chair. Course section is identified by a two-letter code using faculty member's initials (see department for code). May not be applied toward the 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).** To be arranged with faculty member serving as the student's thesis committee chair. Course section is identified by a two-letter code using faculty member's initials (see department for code). May not be applied toward the 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).** Course section is identified by a two-letter code using faculty member's initials (see department for code). May not be applied toward the Ph.D. course requirements. May be repeated as necessary. S/U grading.

## Latin American Studies (Interdepartmental)

10347 Bunche Hall, 206-6571

### Professors

Rodolfo Alvarez, Ph.D. (*Sociology*)  
Shirley L. Arora, Ph.D. (*Spanish*)  
Rubén A. Benítez, Ph.D. (*Spanish*)  
Charles F. Bennett, Ph.D. (*Geography*)  
C. Rainer Berger, Ph.D. (*Anthropology, Geography, and Geophysics*)  
Daniel M. Berry, Ph.D. (*Engineering and Applied Science*)  
Lester Breslow, M.D., M.P.H. (*Public Health*)  
William O. Bright, Ph.D. (*Linguistics and Anthropology*)  
E. Bradford Burns, Ph.D. (*History*)  
Leland S. Burns, Ph.D. (*Architecture and Urban Planning*)

Robert N. Burr, Ph.D. (*History*)  
Bertram Bussell, Ph.D. (*Engineering and Applied Science*)  
Alfonso F. Cardenas, Ph.D. (*Engineering and Applied Science*)  
Martin L. Cody, Ph.D. (*Biology*)  
Roger Detels, M.D., M.S. (*Public Health*)  
Christopher B. Donnan, Ph.D. (*Anthropology*)  
Elsie Dunin, M.A. (*Dance*)  
David K. Eiteman, Ph.D. (*Management*)  
Walter A. Fogel, Ph.D. (*Management*)  
Howard E. Freeman, Ph.D. (*Sociology*)  
John Friedmann, Ph.D. (*Architecture and Urban Planning*)  
Juan Gómez-Quirón, Ph.D. (*History*)  
Edward Gonzalez, Ph.D. (*Political Science*)  
Patricia M. Greenfield, Ph.D. (*Psychology*)  
Thomas R. Howell, Ph.D. (*Biology*)  
Claude L. Hulet, Ph.D. (*Portuguese*)  
Derrick B. Jelliffe, M.D. (*Public Health*)  
Allen W. Johnson, Ph.D. (*Anthropology*)  
John G. Kennedy, Ph.D. (*Anthropology and Psychiatry*)  
Frederick C. Kintzer, Ed.D. (*Education*)  
William J. Knapp, Sc.D. (*Engineering and Applied Science*)  
David M. Kunzle, Ph.D. (*Art History*)  
Thomas J. La Belle, Ph.D. (*Education*)  
James Lockhart, Ph.D. (*History*), Chair, M.A. Committee  
O. Raynal Lunt, Ph.D. (*Biology*)  
Gerardo Luzuriaga, Ph.D. (*Spanish*), Chair, B.A. Committee  
Robert Hal Mason, Ph.D. (*Management*)  
Clement W. Meighan, Ph.D. (*Anthropology*)  
Frank G. Mittelbach, M.A. (*Management*)  
Alfred K. Neumann, M.D. (*Public Health*)  
Henry B. Nicholson, Ph.D. (*Anthropology*)  
Park S. Nobel, Ph.D. (*Biology*)  
Russell R. O'Neill, Ph.D. (*Engineering and Applied Science*)  
Antony R. Orme, Ph.D. (*Geography*)  
C. P. Otero, Ph.D. (*Spanish and Romance Linguistics*)  
José Miguel Oviedo, Ph.D. (*Spanish*)  
Amado M. Padilla, Ph.D. (*Psychology*)  
Richard L. Perrine, Ph.D. (*Engineering and Applied Science*)  
Stanley L. Robe, Ph.D. (*Spanish*)  
Milton I. Roemer, M.D., M.P.H. (*Public Health*)  
Jonathan D. Sauer, Ph.D. (*Geography*)  
Carol Scothorn, M.A. (*Dance*)  
Allegra Snyder, M.A. (*Dance*)  
Edward W. Soja, Ph.D. (*Architecture and Urban Planning*)  
Robert M. Stevenson, Ph.D. (*Music*)  
Norman J. W. Thrower, Ph.D. (*Geography*)  
Hartmut Walter, Ph.D. (*Geography*)  
Louis Jolyon West, Ph.D. (*Psychiatry*)  
Johannes Wilbert, Ph.D. (*Anthropology*)  
James W. Wilkie, Ph.D. (*History*)  
Telford H. Work, M.D., M.P.H. (*Public Health*)  
Joe Yamamoto, M.D., in Residence (*Psychiatry*)  
Maurice Zeitlin, Ph.D. (*Sociology*)  
Henry J. Bruman, Ph.D., Emeritus (*Geography*)  
Mildred E. Mathias, Ph.D., Emeritus (*Biology*)  
Charles A. Schroeder, Ph.D., Emeritus (*Biology*)  
Robert M. Williams, Ph.D., Emeritus (*Management*)

### Associate Professors

Paul R. Abramson, Ph.D. (*Psychology*)  
Ichak Adizes, Ph.D. (*Management*)  
Theodore A. Andersen, Ph.D. (*Management*)  
George D. Bedell, Ph.D. (*Linguistics*)  
Albert Chang, M.D., M.P.H. (*Public Health*)  
E. Mayone Dias, Ph.D. (*Spanish and Portuguese*)  
Timothy Earle, Ph.D. (*Anthropology*)  
Leo Estrada, Ph.D. (*Architecture and Urban Planning*)  
Pierre-Michel Fontaine, Ph.D., Acting (*Political Science*)  
Ralph R. Frerichs, D.V.M., Dr.P.H. (*Public Health*)  
Teshome H. Gabriel, Ph.D. (*Theater Arts*)

Mario Gerla, Ph.D. (*Engineering and Applied Science*)  
John N. Hawkins, Ph.D. (*Education*)  
Henry A. Hespeneide, Ph.D. (*Biology*)  
Marvin Karno, M.D., in Residence (*Psychiatry*)  
Cecelia F. Klein, Ph.D. (*Art*)  
David E. López, Ph.D. (*Sociology*)  
Pamela L. Munro, Ph.D. (*Linguistics*)  
Alfred E. Osborne, Jr., Ph.D. (*Management*)  
David O'Shea, Ph.D. (*Education and Sociology*)  
Susan Plann, Ph.D. (*Spanish*)  
Jorge R. Preloran, B.A. (*Theater Arts*)  
A. Carlos Quicoli, Ph.D. (*Portuguese and Romance Linguistics*)  
Dwight Read, Ph.D. (*Anthropology*)  
Richard M. Reeve, Ph.D. (*Spanish*)  
Hans Schöllhammer, D.B.A. (*Management*)  
Susan Scrimshaw, Ph.D. (*Public Health and Anthropology*)  
A. John Skirius, Ph.D. (*Spanish*)  
Simon González, Ed.D., Emeritus (*Education*)

### Assistant Professors

Sebastian Edwards, Ph.D. (*Economics*)  
Margaret FitzSimmons, Ph.D. (*Architecture and Urban Planning*)  
Robert A. Hill, M.Sc. (*History*)  
Fred Loya, Ph.D., in Residence (*Psychiatry*)  
Rebecca Morales, M.A. (*Architecture and Urban Planning*)  
Sylvia Rodriguez, Ph.D. (*Anthropology*)  
Michael Storper, Ph.D. (*Architecture and Urban Planning*)  
Concepción Valadez, Ph.D. (*Education*)

### Lecturers

José M. Cruz-Salvadores, M.A. (*Spanish*)  
Ludwig Lauerhass, Ph.D. (*History*)  
Emilio Pulido-Huizar, B.A.C., Visiting (*Dance*)  
Linda Rodriguez, Ph.D. (*History*)  
George L. Voyt, J.D. (*Spanish*)

### Adjunct Associate Professor

Carlos Velez-I., Ph.D. (*Anthropology*)

### Visiting Lecturer

Romulus E. Zamora, M.F.A. (*Theater Arts*)

## 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 fifty 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 Architecture and Urban

Planning, Education, Engineering and Applied Science, Library and Information Science, Management, and Public Health 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 (1) students desiring a general education focused on the Latin American cultural region; (2) students planning to enter business, government, or international agency service; (3) students preparing to teach social science or language; and (4) students preparing for advanced academic study of Latin America.

## Preparation for the Major

You must complete all preparation courses with a C (2.0) in each course. Courses may be taken on a Passed/Not Passed basis and are applicable toward the Letters and Science lower division breadth 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 is designed for students with a background in Spanish. An indigenous language of Latin America may be substituted for the minor language.

## Core Areas

You will choose 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 by department consent); Spanish and Portuguese M44; Art 55 or Music 81K and Dance 73B.

**Core Area:** Ten upper division courses from the approved list distributed as follows:

(1) *Core Concentration:* Five courses from literature and folklore or fine arts (art, music, dance, theater arts) or linguistics. 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., public health). No more than three external breadth courses may be electives.

## Approved Undergraduate Course List

### (1) Literature and Folklore

**Folklore and Mythology** M149. Folk Literature of the Hispanic World

**History** 169. Latin American Elitism

**Portuguese (Spanish and Portuguese)** 121A, 121B. Survey of Brazilian Literature

C127. Colonial Brazilian Literature

C129. Romanticism in Brazil

C135. Naturalism, Realism, and Parnassianism in Brazil

C137. Contemporary Brazilian Literature

**Spanish (Spanish and Portuguese)** 136A, 136B. Survey of Spanish American Literature

137. The Literature of Colonial Spanish America

139. Romanticism and Realism in Spanish American Literature

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

170B. Senior Honors Seminar: Topics in Spanish American Literature

### 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 the Study of Literature: Prose

119B. Introduction to the Study of Literature: Poetry and Drama

199. Special Studies

### (2) Fine Arts

**Art** C117A. Advanced Studies in Pre-Columbian Art: Mexico

C117B. Advanced Studies in Pre-Columbian Art: Central America

C117C. Advanced Studies in Pre-Columbian Art: The Andes

118B. The Arts of Pre-Columbian America

**Dance** 173B. Dance of Mexico

183A. Dance Cultures of Latin America

**Music** 131A-131B. Music of Hispanic America

157. Music of Brazil

**Theater Arts** 106C. History of African, Asian, and Latin American Film

### Theory and Methods

**Anthropology** \*118A, 118B. Museum Studies

\*133R. Aesthetic Anthropology

\*137. Ethnography on Film

**Art** \*199. Special Studies in Art

**Dance** \*199. Special Studies in Dance

**Music** \*M180. Analytical Approaches to Folk Music

\*C190A-C190B. Proseminar in Ethnomusicology

\*199. Special Studies in Music

**Theater Arts** 199. Special Studies in Theater Arts

### (3) Linguistics

**Portuguese (Spanish and Portuguese)** 100. Phonology and Pronunciation

\*103. Syntax

\*118. History of the Portuguese and Spanish Languages

**Spanish (Spanish and Portuguese)** \*100A. Introduction to the Study of Spanish Grammar: Phonology and Morphology

\*100B. Introduction to the Study of Spanish Grammar: Syntax

\*115. Applied Linguistics

\*118A. The History of Portuguese and Spanish: Phonology

\*118B. The History of Portuguese and Spanish: Morphology and Syntax

\*119A. Introduction to the Study of Literature: Prose

\*119B. Introduction to the Study of Literature: Poetry and Drama

\*170C. Senior Honors Seminar: Topics in Hispanic Linguistics

### Theory and Methods

**Anthropology** \*143A, 143B. Field Methods in Linguistic Anthropology

**Linguistics** \*100. Introduction to Linguistics

\*103. Introduction to General Phonetics

\*110. Introduction to Historical Linguistics

\*120A. Linguistic Analysis: Phonology

\*120B. Linguistic Analysis: Grammar

\*164. Modern Theories of Language

\*C165A. Linguistic Theory: Phonology

\*C165B. Linguistic Theory: Grammar

\*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

**Anthropology** \*M140. Language in Culture

**Folklore and Mythology** \*118. Folk Art and Technology

**Latin American Studies** 197. Interdisciplinary Topics in Latin American Studies

199. Special Studies in Latin American Studies

**Music** \*M154A-M154B. The Afro-American Musical Heritage

**Philosophy** \*190. Third World Political Thought

**Portuguese (Spanish and Portuguese)** 140A-140B. Luso-Brazilian Literature in Translation

**Spanish (Spanish and Portuguese)** 160B. Hispanic Literatures in Translation: Spanish America and Brazil

**Theater Arts** 112. Film and Social Change

\*Special courses which may be applied toward the M.A. degree requirements by advanced departmental approval. These courses do not have any exclusive focus on Latin America but provide an opportunity for the student to relate a particular perspective or phenomenon to Latin America.

## Core II: Social Sciences

**Preparation:** Two courses from History 8A, 8B, 8C; Latin American Studies 99 (or 197 by department consent); Economics 1 and 2, or 100; Economics 40 or Sociology 18.

**Core Area:** Ten upper division courses from the approved list distributed as follows:

(1) *Core Concentration:* Five courses from 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., public health). No more than three external breadth courses may be electives.

## Approved Undergraduate Course List

### (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

173P. Cultures of Middle America

173Q. Latin American Communities

174P. Ethnography of South American Indians

\*174Q. Ethnology of South American Indians

**Sociology** 131. Latin American Societies

### Theory and Methods

**Anthropology** \*115P. Archaeological Field Training

\*115Q. Archaeological Research Techniques

\*115R. Strategy of Archaeology

116P. Laboratory Analysis in Archaeology

\*M116Q. Dating Techniques in Environmental Sciences and Archaeology

\*118A, 118B. Museum Studies

\*136P. Ethnology: Field Training

\*M136Q. A Laboratory for Naturalistic Observations: Developing Skills and Techniques

\*137. Ethnography on Film

\*138. Methods and Techniques of Ethnohistory

\*186A-186B. Quantitative Methods and Models in Anthropology

\*199. Special Studies in Anthropology

**Sociology** \*109. Introduction to Sociological Research Methods

\*115. Experimentation and Laboratory Methodology in Sociology

\*116. 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 Seminar: Applications of Economic Theory

\*M135A. Economic Models of Public Choice

\*199. Special Studies in Economics

**Management** \*197. Special Topics in Management

### (3) History

**History** 165A-165B. Colonial Latin America

166. Latin America in the 19th Century

167A-167B-167C. Latin America in the 20th Century

168. History of Latin American International Relations

169. Latin American Elitology

170A. Latin American Cultural History

171. The Mexican Revolution since 1910

173. Modern Brazil

174. Brazilian Intellectual History

197. Undergraduate Seminar: Latin America

### Theory and Methods

**History** \*101. Introduction to Historical Practice

\*199. Special Studies in History

**Library and Information Science** 111C. Ethnic Groups and Their Bibliographies: Latino History and Culture

### (4) Political Science

**Political Science** 131. Latin American International Relations

139A-139Z. Special Studies in International Relations: Latin America

149A-149Z. Special Studies in Politics: Latin America

163A, 163B. Government and Politics in Latin America

M169A-M169Z. Special Studies in Comparative Government: Latin America

C197B. Seminars for Majors: Latin America

199. Readings in Political Science: Latin America

### Theory and Methods

**Political Science** \*C102. The Statistical Analysis of Political Data

\*M103A. Economic Models of Public Choice

\*104A-104B. Introduction to Survey Research

\*119A-119Z. Special Studies in Political Theory

\*137. International Relations Theory

\*146. Political Behavior Analysis

\*168S. Comparative Political Analysis

### (5) Geography

**Geography** 121. Conservation of Resources: Underdeveloped World

\*128. The World's Ecosystems: Problems and Issues

\*142. Population Geography

181. Middle America

182A. Spanish South America

182B. Brazil

\*199. Special Study

### Theory and Methods

**Geography** \*171. Quantitative Analysis

### (6) Electives

**Anthropology** \*132. Technology and Environment

\*150. Comparative Society

\*153A-153B. Production and Exchange in Traditional Societies

\*161. Development Anthropology

\*M163. Women in Culture and Society

\*167. Urban Anthropology

\*M168. Health in Culture and Society

**Economics** \*120. Introduction to Urban and Regional Economics

\*121. Urban Economic Analysis

\*180. Comparative Economic Systems

**Geography** \*108. World Vegetation

\*129. Problems of the Environment: Seminar

\*140. Political Geography

\*148. Economic Geography

\*150. Urban Geography

\*152. World Cities

**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** \*123. International Organization and Administration

\*124. International Political Economy

\*167. Ideology and Development in World Politics

\*183. Administration of International Agencies and Programs

\*188A. Comparative Public Administration

\*188B. Comparative Urban Government

\*191. Urban and Regional Planning and Development

**Sociology** \*120. Social Change

\*123. Social Stratification

\*126. Social Demography

\*140. Political Sociology

\*Special courses which may be applied toward the M.A. degree requirements by advanced departmental approval. These courses do not have any exclusive focus on Latin America but provide an opportunity for the student to relate a particular perspective or phenomenon to Latin America.

## Core III: Ecology and Environment

**Preparation:** Two courses from History 8A, 8B, 8C; Latin American Studies 99 or Geography 5; Mathematics 50; Computer Science 10S.

**Core Area:** Ten upper division courses from the approved list distributed as follows:

(1) *Core Concentration:* Five courses from the core area. 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

**Geography** 121. Conservation of Resources: Underdeveloped World

128. The World's Ecosystems: Problems and Issues

\*142. Population Geography

181. Middle America

182A. Spanish South America

182B. Brazil

\*199. Special Study

**Public Health** 174E. Health, Disease, and Health Services in Latin America

\*186. The World's Population and Food

### Theory and Methods

**Anthropology** \*186A-186B. Quantitative Methods and Models in Anthropology

**Geography** \*171. Quantitative Analysis

**Public Health** 100A, 100B, 100C. Introduction to Biostatistics

181. Introduction to Social Research Methods in Health

### Electives

**Anthropology** \*132. Technology and Environment

\*153A-153B. Production and Exchange in Traditional Societies

155. Illness in Non-Western Societies

\*167. Urban Anthropology

M168. Health in Culture and Society

**Economics** \*120. Introduction to Urban and Regional Economics

**Geography** 129. Problems of the Environment: Seminar

\*140. Political Geography

\*148. Economic Geography

\*150. Urban Geography

\*152. World Cities

**Latin American Studies** 197. Interdisciplinary Topics in Latin American Studies

199. Special Studies in Latin American Studies

**Public Health** \*161. Nutrition and Health

**Sociology** \*126. Social Demography

\*Special courses which may be applied toward the M.A. degree requirements by advanced departmental approval. These courses do not have any exclusive focus on Latin America but provide an opportunity for the student to relate a particular perspective or phenomenon to Latin America.

### 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 will be granted according to the individual programs arranged in consultation with the undergraduate adviser. Proposals must be presented in writing to the interdepartmental committee.

## Master of Arts Degree

### Admission

In addition to University minimum requirements, the B.A. degree in Latin American Studies constitutes the normal basis for admission. 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 will be 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 you have been away from school for some time, in which case one of the letters may be from an employer.

(2) A minimum of 3.0 or B average in the junior/senior years of college.

(3) A statement of purpose discussing your background in Latin American studies, proposed program of study, and future career plans.

(4) A minimum score of 1000 on the Aptitude Test (combined verbal and quantitative sections) of the Graduate Record Examination.

(5) A resume or curriculum vitae describing academic and Latin American experience.

Students are admitted each quarter. Application deadlines are November 1 for Winter Quarter, February 1 for Spring Quarter, and May 15 (or July 1 by special petition) for Fall Quarter.

Fellowship applications for the academic year are due on January 31 prior to the Fall Quarter for which application is made. Prospective students may write for departmental brochures to the Academic Programs Office, Latin American Center, 10347 Bunche Hall, UCLA, Los Angeles, CA 90024.

### Major Fields or Subdisciplines

You are expected to develop and integrate three fields in Latin American studies, to be selected from the following: anthropology, art, economics, engineering, education, 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.

## Foreign Language Requirement

Proficiency equivalent to 24 quarter units of university-level Spanish and 12 quarter units of university-level Portuguese or 16 quarter units of university-level Portuguese and 20 units of university-level Spanish is required. Since these courses may not be applied toward the M.A. degree, you are encouraged to pass these proficiency levels by examination. A major Indian language of Latin America may be substituted for either Spanish or Portuguese. You must fulfill the foreign language requirement by examination or petition for a waiver of the examination if you have gained competency in another manner (i.e., native speaker, upper division coursework, Peace Corps service).

## Course Requirements

Two plans are available. For the comprehensive examination plan, a minimum of nine courses is required, to be distributed among three fields or disciplines either on a 3-3-3 or 4-3-2 basis. Of the nine courses, five must be at the graduate level, with at least one in each of the three fields.

For the thesis plan (which requires prior approval), a minimum of ten courses is required, to be distributed on a 4-3-3 basis among three fields. Three graduate-level courses are required in the first field, with one each in the two minor fields.

All courses must be selected from the department-approved list of courses. Other courses must be petitioned in advance.

Courses numbered in the 300 and 400 series are not applicable toward the M.A. degree.

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 five graduate courses required for the degree.

Graduate courses may be repeated unless they are of the lecture type.

## Comprehensive Examination Plan

In addition to course requirements, you must prepare a research paper on an approved topic that integrates two of the three fields in which coursework has been undertaken. Your research paper committee must approve your topic in advance and must receive a draft of the paper at least five weeks prior to the end of the quarter in which you plan to graduate. Committee members will make recommendations for revision, evaluate the final draft and, if your work meets the University standards of scholarship, will recommend the award of the M.A. degree.

## Thesis Plan

Although you are generally expected to follow the M.A. comprehensive examination plan, in special cases you may be allowed to follow the M.A. thesis plan. You must develop a carefully

prepared proposal that provides sound justification for the thesis plan, including provisions for funding any planned field research.

Once the thesis plan option has been approved, you select a three-member faculty thesis committee to work with you in the development of the thesis and to read, evaluate, and approve the drafts and final version. 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, you must file for advancement to candidacy with the Graduate Division.

## Cooperative Degree Programs

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, you may pursue both degrees simultaneously. Articulated degree programs are currently available with the Schools of Architecture and Urban Planning (M.A. in Architecture/Urban Planning), Education (M.Ed. in Curriculum), Engineering and Applied Science (M.S. in Engineering), Library and Information Science (M.L.S.), and Public Health (M.P.H.). A concurrent degree program is available with the Graduate School of Management (M.B.A.).

## Individual Ph.D. Programs

You may design an individual doctoral program in Latin American studies. An explicit proposal must be submitted to your M.A. committee for analysis and endorsement, and then be submitted to the Graduate Council for approval.

## Lower Division Course

**99. Introduction to Latin American Problems.** Limited to 15 students. An interdisciplinary seminar for lower division students. May be repeated for credit with topic change.

## Upper Division Courses

**M155. Disease Problems of Socioeconomic and Political Impact in Latin America.** (Same as Public Health M115.) Lecture, six hours; discussion, six hours. Prerequisite: one upper division course in Latin American studies. Social, economic, and political impact of important disease problems in Latin American countries. Mr. Work

**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. An intensive directed research program in which students conduct interdisciplinary research or complete an internship with an international agency or program dealing with Latin America. Faculty sponsorship and written reports are required.

## Graduate Courses

**M200. Latin American Research Resources.** (Same as History M265 and Library and Information Science M225.) The course acquaints students with general and specialized materials in fields concerned with Latin American studies. Library research techniques provide the experience and competency required for future bibliographic and research sophistication as the basis for enhanced research results. Mr. Lauerhass

**201. Statistical Resources for Latin American Research.** The course acquaints students with the contemporary statistical materials important for research in Latin American studies. Discussion focuses on the qualitative and interpretative aspects of the material, especially as it relates to data developed for publication in the Latin American Center's *Statistical Abstract of Latin America* and its Supplement Series.

**M250A. Indians of South America.** (Same as Anthropology M272.) Lecture, three hours. Prerequisite: consent of instructor. Survey of the literature and research topics related to Indian cultures of South America. May be repeated for credit. Mr. Wilbert

**250B. Interdisciplinary Seminar in Latin American Studies.** Lecture, three hours. Prerequisite: consent of instructor. Problem-oriented seminar on critical areas stressed in the University's cooperative programs in Latin America.

**250C. Interdisciplinary Topics in Latin American Studies.** Prerequisite: consent of instructor. Reading knowledge of Spanish or Portuguese is normally required. A seminar devoted to selected topics of an interdisciplinary nature.

**M268A-M268B. Seminar in Recent Latin American History.** (Same as History M268A-M268B.) Seminar, three hours. Prerequisite: consent of instructor. Reading knowledge of Spanish and Portuguese is normally required. A seminar devoted to selected topics of an interdisciplinary nature. In Progress grading. Mr. Wilkie

**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. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. 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 grading.

**597. Preparation for M.A. Comprehensive Examination (2 to 8 units).** Course is ordinarily taken only during the quarter in which the 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

Refer to the Latin American Studies undergraduate section for the lists of approved undergraduate courses.

## Fine Arts

**Art** \*201. Historiography of Art History

220. The Arts of Africa, Oceania, and Pre-Columbian America

**Dance** \*280A-280E. Advanced Studies in Dance Ethnology

**Music** \*280. Seminar in Ethnomusicology

**Theater Arts** \*M209C. Ethnographic Film

\*298A-298B. Special Studies in Theater Arts

## 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

\*101B. Advanced Composition and Style

102A-102B. Intensive Portuguese

**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

\*105A. Intermediate Composition

\*105B. Advanced Composition

## Linguistics

**Anthropology** 240. Seminar in Language and Culture

**Linguistics** \*210A. Field Methods I

\*210B. Field Methods II

\*220. Linguistic Areas

\*225. Linguistic Structures

M246C. Topics in Linguistic Anthropology

**Portuguese (Spanish and Portuguese)** \*M203A-M203B. The Development of the Portuguese and Spanish Languages

\*204A-204B. Transformational Grammar

\*206. Portuguese Linguistics

**Spanish (Spanish and Portuguese)** \*M203A-M203B. The Development of the Portuguese and Spanish Languages

\*204A-204B. Transformational Grammar

\*206. Linguistics

\*209. Dialectology

\*256A-256B. Studies in Linguistics and Dialectology

## Literature

**Portuguese (Spanish and Portuguese)** \*M200. Bibliography

C243A. Special Topics in Brazilian Literature: Colonial Literature

C243B. Special Topics in Brazilian Literature: Romanticism in Brazil

C243C. Special Topics in Brazilian Literature: Naturalism, Realism, and Parnassianism

C243D. Special Topics in Brazilian Literature: Contemporary Brazilian Literature

M249. Hispanic Folk Literature

253A. Special Studies in Brazilian Literature: Prose Fiction

253B. Special Studies in Brazilian Literature: Poetry

253C. Special Studies in Brazilian Literature: Theater

**Spanish (Spanish and Portuguese)** \*M200. Bibliography

237. Chroniclers of the Americas

239. Neoclassic and Romantic Prose and Poetry in Spanish America

\*240. The Modernist Movement

243. Contemporary Spanish American Poetry

244. Contemporary Spanish American Novel and Short Story

245. Contemporary Spanish American Essay



246. Contemporary Spanish American Theater  
 M249. Hispanic Folk Literature  
 277. Studies in Colonial Spanish American Literature  
 278. Studies in 19th-Century Spanish American Literature  
 280A. Studies in Contemporary Spanish American Literature: Modernist Poetry  
 280B. Studies in Contemporary Spanish American Literature: Postmodernist Poetry  
 280C. Studies in Contemporary Spanish American Literature: Novel and Short Story  
 280D. Studies in Contemporary Spanish American Literature: The Essay  
 \*M286B. Studies in Hispanic Folk Literature: Narrative and Drama  
 \*M286C. Studies in Hispanic Folk Literature: Ballad, Poetry, and Speech

## Professional

**Architecture and Urban Planning** \*232. Spatial Planning: Regional and International Development  
 \*234. Seminar in Spatial Development Policy  
 \*235A-235B. Regional Approaches to National Development  
 \*236A. Urban and Regional Economic Development I  
 \*236B. Urban and Regional Economic Development II  
 \*237. Introduction to Regional Planning: The Evolution of Regional Planning Doctrines  
 239. Special Topics in Urban and Regional Development Policy  
 246. Housing in Social and Economic Development Policy  
 253. Social Theory for Planners

**Education** \*203. Educational Anthropology  
 \*204A. Topics and Issues in International and Comparative Education  
 \*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  
 \*207. Politics and 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  
 \*596. Directed Independent Study  
 \*597. Preparation for Master's Comprehensive Examination or Doctoral Qualifying Examination  
 \*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)

**Law** \*270. International Law

\*271. International Business Transactions

**Library and Information Science** \*207. Seminar on International and Comparative Librarianship

\*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  
 \*208. Selected Topics in Business Economics  
 \*234A. Multinational Business Finance  
 \*234B. Advanced Studies in International Finance  
 \*261B. International Marketing Management  
 \*296A. International Business Management  
 \*297A. Comparative and International Management  
 \*297B. International Business Policy  
 \*297C. International Business Law  
 \*297D. International Business Negotiations  
 \*298B. Special Topics in International and Comparative Management

**Public Health** \*214. Infectious and Tropical Disease Epidemiology

\*216A. Ecology of Exotic Diseases

\*221. Seminar in Epidemiology: Methodology

\*222. Seminar in Epidemiology: Infectious and Tropical Disease

\*240. Health Care Issues in International Perspective

\*260E. Advanced Nutrition: Vitamins

\*260F. Advanced Nutrition: Proteins

\*260G. Advanced Nutrition: Lipids

260H. Advanced Nutrition: Minerals

\*262. Seminar in Nutrition

\*270. Maternal and Child Nutrition

\*M271. Medical Anthropology

\*272. Seminar on Current Issues in Maternal and Child Health

\*M274A-M274B. Population Policy and Fertility

\*M274C. Seminar in Population Policy and Fertility

\*M276. Culture and Human Reproduction

\*596. Directed Individual Study or Research

## Social Science

**Anthropology** \*212P. Selected Topics in Hunter-Gatherer Archaeology

\*214. Selected Topics in Prehistoric Civilizations of the New World

\*M216. Dating Techniques in Environmental Sciences and Archaeology

\*218. Historical Reconstruction and Archaeology

\*230P. Ethnology

\*232Q. Myth and Ritual

\*M232R. South American Folklore and Mythology Studies

233P. Symbolic Anthropology

\*239P. Selected Topics in Field Training in Ethnography

\*239Q. Analysis of Field Data

\*240. Seminar in Language and Culture

\*M241. Topics in Linguistic Anthropology

\*M247A. Ethnographic Film

251Q. Cultural Ecology of Lowland South America

\*253. Economic Anthropology

\*260. Urban Anthropology

\*261. Comparative Minority Relations

262. The Cultural Context of Health Care

M263. Medical Anthropology

\*264. Ethnography of the Mexican/Chicano People in North America

\*M267B. Ethnographic Film Direction

M272. Indians of South America

\*282. Research Design in Cultural Anthropology

**Archaeology** \*200. Archaeology Colloquium

\*259. Fieldwork in Archaeology

**Economics** \*211. Economic Development

\*212. Applied Topics in Economic Development

\*213A-213B. Selected Problems of Underdeveloped Areas

\*221. Urban and Regional Economic Analysis I

\*222. Urban and Regional Economic Analysis II

\*291. International Trade Theory

\*292. International Finance

\*293A-293B. International Economics: Selected Topics

**Folklore and Mythology** \*201A, 201B. Folklore Collecting and Field Research

248. Theory and Method in Latin American Folklore Studies

\*M249. Hispanic Folk Literature

\*M286B. Studies in Hispanic Folk Literature: Narrative and Drama

\*M286C. Studies in Hispanic Folk Literature: Ballad, Poetry, and Speech

**Geography** \*251. Seminar: Urban Geography

\*M278. Dating Techniques in Environmental Sciences and Archaeology

281. Middle America

282. South America

\*292. Advanced Regional Geography: Selected Regions

**History** 200I. Advanced Historiography: Latin America

201I. Topics in History: Latin America

266A-266B. Seminar in Colonial Latin American History

267A-267B. Seminar in Latin American History: 19th and 20th Centuries

M268A-M268B. Seminar in Recent Latin American History

**Latin American Studies** M200. Latin American Research Resources

M250A. Indians of South America

250B. Interdisciplinary Seminar in Latin American Studies

250C. Interdisciplinary Topics in Latin American Studies

**Political Science** C204. Quantitative Applications

\*C218A. Public Administration and Democratic Government

\*224A. Studies in Politics: Politics and Economy

\*CM229. Urban Government

\*C230. Comparative Development Administration

\*C231D. Studies in International Relations: International Relations Theory

\*235. Selected Topics in Comparative Politics

C250A. Seminars in Regional and Area Political Studies: Latin American Studies

\*C253. Seminar in International Relations

\*256A-256B. Seminar in Comparative Government

**Sociology** \*259. Social Structure and Economic Change: Historical and Comparative Perspectives

\*263. Social Stratification

M287A-M287B. Population Policy and Fertility

\*292A-292B-292C. Research Development

\*Special courses which may be applied toward the M.A. degree requirements by advanced departmental approval. These courses do not have any exclusive focus on Latin America but provide an opportunity for the student to relate a particular perspective or phenomenon to Latin America.

## Law and Society

4256 Bunche Hall, 825-3862

### Scope and Objectives

The Special Undergraduate Program in Law and Society 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 will receive a degree with a major in political science and specialization in law and society. The program is designed to allow students to explore the relationships of law with ethics, economics, crime, and social and political institutions and theories.

### Special Undergraduate Program

#### Preparation for the Program

*Required:* Political Science 10, 40, 70, and 20 or 50; two courses from History 7A, 7B, Philosophy 4, 6, 22.

#### Upper Division

The political science major should be completed as follows: Political Science 117; one course in Field I other than course 117; two courses in Field III; four courses in Field V; two other political science electives; six courses from Anthropology 152, Economics 172, History 151A, 151B, Philosophy 150, 151A, 151B, 157A, 157B, 166, Sociology 145, 146, 147, 162.

For further information, contact Vicki Waldman, Political Science Counselor, in the program of office.

Pamela L. Munro, Ph.D.  
Russell G. Schuh, Ph.D. (*Linguistics and African Languages*)

#### Assistant Professors

John W. Du Bois, Ph.D.  
Bruce P. Hayes, Ph.D.  
Patricia A. Keating, Ph.D.  
Timothy A. Stowell, Ph.D.

#### Adjunct Assistant Professors

Susan R. Curtiss, Ph.D.  
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 linguistics does not mean 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), syntax, and semantics. A grammar is a system of rules which characterize the phonology, 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 have a uniform paradigm, a single optimal approach to the subject. Hence, the courses provide a variety of approaches which reflect the diversity of the field.

In a 1982 survey conducted by the Conference Board of the Associated Research Councils, UCLA's Linguistics Department was judged second best in the nation in terms of 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 concen-

trates entirely on an African language area. The combined majors in conjunction with teacher 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.

## 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:* Completion of the equivalent of the sixth quarter in each of two foreign languages or the sixth quarter in one foreign language and the third quarter in each of two other foreign languages. In addition you must take Linguistics 1 and two of the following courses: Philosophy 31, Psychology 10, one course in cultural anthropology.

### The Major

*Required:* A minimum of 11 upper division or graduate courses, including Linguistics 100, 103, 110, 120A, 120B or 127, and either 164, C165A, or C165B (both C165A and C165B are strongly recommended for students planning linguistics graduate work; course 164 is recommended for students *not* planning linguistics graduate work). The remaining courses are electives, three of which must be upper division linguistics courses, to be selected subject to your adviser's approval. These electives have typically been selected from the following list, though it is not exhaustive: Linguistics C104, 120B, 125, 127, 130, CM135, 140, M146, M150, 160, 164, C165A, C165B, 170, 175, C180, 195, 199 (if four units), African Languages 190, Anthropology 143A, 143B, Philosophy 127A, 127B, 172, Psychology 122, 123, English 121, 122, or advanced courses in a foreign language or literature (beyond the sixth quarter of language instruction). In addition to the 11 upper division courses, at least three courses (which may be either upper or lower division) are required in a language other than those in the Romance, Slavic, or Germanic families. These courses may be applied toward the foreign language requirement described above under "Preparation for the Major." 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 100A, you have automatically satisfied the requirement of the sixth quarter of work in one language).

## Linguistics

2113 Campbell Hall, 825-0634

#### Professors

Stephen R. Anderson, Ph.D.  
Raimo A. Anttila, Ph.D. (*Indo-European and General Linguistics*)  
William O. Bright, Ph.D.  
Victoria A. Fromkin, Ph.D.  
Edward L. Keenan, Ph.D.  
Mazisi R. Kunene, M.A. (*African Languages and Literature*)  
Peter Ladefoged, Ph.D. (*Phonetics*)  
Paul M. Schachter, Ph.D.  
Robert P. Stockwell, Ph.D., *Chair*  
Sandra A. Thompson, Ph.D.

#### Associate Professors

George D. Bedell, Ph.D.  
Thomas J. Hinnebusch, Ph.D. (*Linguistics and African Languages*)

Linguistics 195 is recommended for students planning to pursue graduate work in linguistics, since it provides a unique opportunity to engage in independent research and to write a paper which can be used as evidence by graduate admissions committees. To enroll in course 195, you must consult with the department's senior essay counselor.

### Honors in Linguistics

Honors in linguistics will be 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.

## Bachelor of Arts in Linguistics and Computer Science

Admission to the major is contingent on passing the following courses, which constitute the linguistics and computer science premajor, with a grade-point average of 3.3 or better and no grade lower than a C: Linguistics 1, 100, Philosophy 31, Computer Science 10C, 20.

### Preparation for the Major

*Required:* Linguistics 1, Computer Science 10C, 20, 30, Mathematics 31A, 31B, Philosophy 31, completion of the sixth quarter in one foreign language and the third quarter in a second foreign language. Mathematics 31A and 31B must be passed with grades of C or better. Mathematics 61 is strongly recommended.

### The Major

*Required:* Fourteen upper division courses as follows: Linguistics 100, 103, C104, 120A, 120B or 127, either 164, C165A, or C165B (the last of these being most strongly recommended for this major), C180, two upper division electives in linguistics, Computer Science 111, 131, 132, 141, 181. Linguistics 145 is strongly recommended.

## Bachelor of Arts in Linguistics and East Asian Languages and Cultures

### Preparation for the Major

*Required:* Completion of the sixth quarter in either Chinese or Japanese; Linguistics 1; Philosophy 31; one course in cultural anthropology; either East Asian Languages and Cultures 40A or 40B, as appropriate; completion of the sixth quarter in one other foreign language or the third quarter in each of two other foreign languages.

### The Major

*Required:* Linguistics 100, 103, 110, 120A, 120B or 127, either 164, C165A, or C165B, one upper division elective in linguistics; for the classical Japanese track: East Asian Lan-

guages and Cultures 119A-119B, 129, 137, 175, 179A, 179B; for the modern Japanese track: East Asian Languages and Cultures 119A-119B, 175, three courses from 134A, 134B, 142A, 142B, 145, 153A, 153B; for the classical Chinese track: East Asian Languages and Cultures 13A-13B-13C, 113A-113B, two courses from 152A, 152B, 163A, 163B, 163C; for the modern Chinese track: East Asian Languages and Cultures 121A-121B-121C, four courses from 122A, 122B, 124A, 124B, 124C, 126, 151A, 151B.

## Bachelor of Arts in Linguistics and English

### Preparation for the Major

*Required:* Linguistics 1, English 3, 10A, 10B, 10C, Philosophy 31, completion of the sixth quarter in each of two foreign languages or the sixth quarter in one foreign language and the third quarter in each of two other foreign languages.

### The Major

*Required:* Fifteen upper division courses as follows: Linguistics 100, 103, 110, 120A, 120B or 127, either 164, C165A, or C165B, two upper division electives from other linguistics courses; 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 1, French 1, 2, 3, 4, 5, 6, 12, 15, completion of the sixth quarter in one other foreign language or the third quarter in each of two other foreign languages.

### The Major

*Required:* Sixteen upper division courses as follows: Linguistics 100, 103, 110, 120A, 120B or 127, either 164, C165A, or C165B, two upper division electives in linguistics, French 100A, 100B, 100C, 103, 105, 106, and two elective upper division French literature courses.

## Bachelor of Arts in Linguistics and Italian

### Preparation for the Major

*Required:* Linguistics 1, Italian 1, 2, 3, 4, 5, 25, Latin 1, 2, 3, completion of the third quarter in one other foreign language or the sixth quarter in Latin, Philosophy 31, one course in cultural anthropology.

### The Major

*Required:* Thirteen upper division courses as follows: Linguistics 100, 103, 110, 120A, 120B or 127, either 164, C165A, or C165B, two upper division electives in linguistics, Italian 102A, 190, and three additional upper division electives in Italian.

## Bachelor of Arts in Linguistics and Philosophy

### Preparation for the Major

*Required:* Linguistics 1; Philosophy 31 and two courses from 1, 6, 7, 21; completion of the sixth quarter in each of two foreign languages or the sixth quarter in one foreign language and the third quarter in each of two other foreign languages.

### The Major

*Required:* Fourteen upper division courses as follows: Linguistics 100, 103, 120A, 120B or 127, C165B, three upper division electives in linguistics; six upper division courses in philosophy, including at least five from Philosophy 126A through 135, 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 1, Psychology 10, 41, 42, completion of the sixth quarter in one foreign language and the third quarter in a second foreign language. Computer Science 10S is strongly recommended.

### The Major

*Required:* Fourteen upper division courses as follows: Linguistics 100, 103, 120A, 120B or 127, 130, 195, two upper division electives in linguistics, Psychology 110, 120, 121, 122 or 123, 130, and the remaining elective to be selected from 112A, 112B, 112C, 112E, 115, 116, 124B, 135, 137A. Linguistics 164 and Psychology 115 are strongly recommended.

## Bachelor of Arts in Linguistics and Scandinavian Languages

### Preparation for the Major

*Required:* Linguistics 1, 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 quarter in one other foreign language or the third quarter in each of two other foreign languages.

### The Major

*Required:* Fourteen upper division courses as follows: Linguistics 100, 103, 110, 120A, 120B

or 127, either 164, C165A, or C165B, 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 1, Spanish 1, 2, 3, 4, 5, 25, M42, M44, completion of the sixth quarter in one other foreign language or the third quarter in each of two other foreign languages.

### The Major

*Required:* Fifteen upper division courses as follows: Linguistics 100, 103, 110, 120A, 120B or 127, either 164, C165A, or C165B, two additional upper division courses in linguistics (preferably 130 and 170), Spanish 100A, 100B, 115 or 118A, 119A, 119B, and three additional upper division courses in Spanish.

## Bachelor of Arts in African Languages

### Preparation for the Major

*Required:* Linguistics 1 and nine courses from African Languages 1A through 42C and 199 (six in one language and three in another).

### The Major

*Required:* A minimum of 15 upper division courses, including three courses in an African language; African Languages 150A-150B, 190, 192; Linguistics 100, 103; three courses selected from English 114, Geography 189, History 125A, 125B, 125C, 126A, 126B, 127A, 127B, 128A, 128B, Linguistics 110, 120A, 120B or 127, 140, M146, 170, Music 143A, 143B, Political Science 166A, 166B, 166C. Linguistics 164 and completion of the sixth quarter in one of the following non-African languages are strongly recommended: French, Dutch-Flemish and Afrikaans, German, Portuguese, Arabic.

## Graduate Study

The programs leading to the M.A. and Ph.D. degrees in Linguistics are open to qualified graduate students who are interested in descriptive, theoretical, and historical linguistics. Preparation for graduate study in linguistics should be equivalent in as many respects as possible to the undergraduate curriculum in linguistics.

There is also a graduate program leading to a Ph.D. in Applied Linguistics. It is administered by an interdepartmental committee, not by the Department of Linguistics. The requirements of this program are stated earlier in this chapter.

## Master of Arts 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 31 of the previous year. Late applications for admission without possibility of consideration for support will be received through March 31.

Applicants are asked to submit a statement of purpose, which should include their background for graduate study in linguistics and their immediate and long-range goals in the field. They should also have at least two scholars under whom they have studied submit letters to the department about their qualifications. Scores on the Graduate Record Examination (verbal, quantitative, and analytical) must be submitted with the application. There is no minimum score requirement. In addition, applicants must submit a copy of some research paper or other piece of writing in linguistics or a closely related field.

While not required for admission, Linguistics 100, 103, 110, 120A, 120B, C165A/C200A, C165B/C200B are to be taken prior to graduate courses in their respective areas. At the time of admission, students will be notified which, if any, of the above courses are required as deficiencies. However, if there is any question of whether courses taken elsewhere are equivalent to the above courses, students must discuss this with their advisers.

Prospective students may request an information brochure from the administrative assistant in the department. This brochure explains, in particular, advising procedures and procedures for the formation of M.A. and Ph.D. guidance committees.

### Specialization

At the M.A. level, six core courses in phonetics, phonology, syntax, semantics, and historical linguistics are required. The remaining three (of the nine graduate courses required) may be taken in any area of linguistics, generally aiming toward a doctoral specialization. Except for these electives, no specialization is possible at the M.A. level.

### Foreign Language Requirement

You must demonstrate knowledge of one research language before receiving an M.A. and a second research language before advancement to candidacy. Knowledge can be demonstrated by one of four methods: (1) a reading examination administered by the department; (2) a research paper based on extensive sources in the language; (3) a conversation examination showing knowledge in depth; (4) an ETS graduate language examination. One of the languages must have substantial literature on linguistics, the other may serve as

a contact language for field research. The latter option must be approved by the departmental language committee. Native speakers of languages other than English may use English to meet one of the foreign language requirements unless English was the language of instruction in their elementary and secondary education. The departmental brochure provides details about the departmentally administered language examinations.

### Course Requirements

The M.A. degree requires the completion, with a B average or better, of nine graduate courses in linguistics. The following eight courses are required: Linguistics C165A/C200A, C165B/C200B, 201A, 202, 203, 206A, 206B, 207. One elective is required and must be a graduate linguistics course. Students who enter without deficiencies will already have taken courses C165A and C165B, so they must take three electives in all. The core courses in the relevant areas are normally considered prerequisite to the proseminars (courses 250 through 259B), which may be repeated for credit with topic change. No more than four units of course 596A or 596B and no more than eight units of course 501 may be applied toward the required nine courses. Courses in the 260 series may be applied as electives for the M.A. if taken for four units.

The following undergraduate courses or equivalents are prerequisite to graduate courses in the corresponding areas: Linguistics 100, 103, 110, 120A, 120B, C165A, C165B. Course 103 must have been passed with a grade of B or better as prerequisite to courses 210A and 210B. If course 103 is waived on the basis of training elsewhere, you must pass a department examination in practical phonetics. This requirement must be completed before admission into the doctoral program.

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.

### Thesis Plan

After completing the required courses and the foreign language examination, students selecting this plan will submit a thesis based on original research to a thesis committee for approval. All students intending to proceed to the Ph.D. must adopt this plan.

If you wish 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. Limits on the length of the thesis are stipulated in the departmental brochure.

Requirements for receiving an M.A. include the filing of a Petition for Advancement to Candidacy form early in the quarter during which you expect to take the degree. The thesis must be

typed according to regulations set by the University. Information on these regulations and procedures is available from the Graduate Division.

## Comprehensive Examination Plan

After completing the required courses and the foreign language examination, you must pass a comprehensive examination administered by a four-member committee of the faculty, appointed by the Chair. This is normally an oral examination, general in scope, and will result in a terminal M.A. degree.

## Ph.D. Degree

### Admission

General admission requirements are the same as those listed for the M.A. Students who have done their earlier graduate work at UCLA will be considered for admission into the Ph.D. program 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 the student's overall work and promise.

If you have already received an M.A. in Linguistics from another department or institution, you must fulfill all the requirements expected of an M.A. candidate, including the coursework, unless work elsewhere is equivalent and satisfies the course requirements. Then there are two possible procedures: (1) you may submit a master's thesis written at another institution or department or (2) if you have not written a thesis elsewhere, you must submit to the evaluation committee a paper equal in depth and scope to a thesis. A committee is appointed and, in either case, once the committee has approved the thesis or paper, it is submitted to the entire faculty who evaluate its quality and your accomplishments and promise.

### Major Fields or Subdisciplines

You may specialize in syntax, semantics, phonology, phonetics, language change, typology, sociolinguistics, neurolinguistics, and many language areas, notably African languages and American Indian languages. Other specializations may be possible, depending on the availability of faculty expertise.

### Foreign Language Requirement

A doctoral committee cannot be officially appointed until the foreign language requirement has been met. Details are given above under the "Foreign Language Requirement" for the M.A. degree.

### Course Requirements

Candidates for the Ph.D. are required to take 36 units of graduate coursework beyond the M.A. requirements. These units must include Linguistics 210A and 210B, unless they have been used to fulfill the M.A. requirement, 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, you are expected to present some of the results of your research at a meeting of the Linguistics Department Colloquium. This is a requirement for the degree.

### Qualifying Examinations

In order to be advanced to candidacy, you are required to prepare two substantive research papers of publishable quality 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 for 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 will deal with the background necessary for you to pursue research on the specific topic. Reexamination is possible on recommendation of the committee. You are expected to take the examination and be advanced to candidacy no later than six quarters after being admitted to the doctoral program.

### Final Oral Examination

A final defense of the dissertation is required, scheduled at a time, and with advance notice, that will enable a substantial number of students and faculty to attend. The defense is not restricted to the doctoral committee.

### Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## General Linguistics

### Lower Division Courses

**1. Introduction to the Study of Language.** A summary, for the general undergraduate, of what is known about human language; the 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 and Social Issues.** Prerequisite: course 1 or consent of instructor. A survey of linguistic problems that have social or political importance. Topics include minority languages and dialects (particularly "Black English" and Chicano-American), bilingualism, literacy, second-language education, and language standardization in developing and developed nations.

**5. Language in Africa.** A survey of the languages spoken in Africa and their social and cultural context; languages found on the African continent; history of African language study; literature in African languages; African languages in the mass media; language policy and planning in modern Africa.

**10. The Structure of English Words.** Lecture, three to four hours. An introduction to the structure of English words of classical origin, including the most common base forms and the 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.

Mr. Stockwell

## Upper Division Courses

**100. Introduction to Linguistics.** An introduction to the theory and methods of linguistics: universal properties of human language; phonetic, phonological, morphological, syntactic, and semantic structures and analysis; the nature and form of grammar.

**103. Introduction to General Phonetics.** Lecture, three hours; laboratory, two hours. Prerequisite or corequisite: course 100 or equivalent. The phonetics of a variety of languages and the phonetic phenomena that occur in languages of the world. Extensive practice in the perception and production of such phenomena.

Ms. Keating, Mr. Ladefoged

**C104. Experimental Phonetics.** Lecture, four hours; laboratory, two hours. Prerequisite: course 103. Survey of the principal techniques of experimental phonetics. Use of laboratory equipment for recording and measuring phonetic phenomena. Concurrently scheduled with course C204.

Mr. Anderson, Ms. Fromkin, Ms. Keating,

Mr. Ladefoged

**110. Introduction to Historical Linguistics.** Prerequisites: courses 100, 103. The methods and theories appropriate to the historical study of language, such as the comparative method and method of internal reconstruction. Sound change, grammatical change, semantic change.

Mr. Anttila, Mr. Schuh, Mr. Stockwell

**114A. American Indian Linguistics.** Strongly recommended prerequisite: course 100. Survey of genetic, areal, and typological classifications of American Indian languages, stressing representative features of phonology, morphology, and syntax; writing systems for American Indian languages; American Indian languages in social and historical context.

Ms. Munro

**114B. American Indian Language Structures.** Strongly recommended prerequisite: course 100. Course 114A is not prerequisite to 114B. Detailed introduction to the linguistic structure of three different American Indian languages representing at least two separate genetic groupings.

Ms. Munro

**120A. Linguistic Analysis: Phonology.** Prerequisites: courses 100, 103. Descriptive analysis of phonological structures in natural languages; emphasis on insight into the nature of such structures rather than linguistic formalization.

Mr. Bedell, Mr. Bright, Mr. Hayes

**120B. Linguistic Analysis: Grammar.** Prerequisite: course 100. Course 120A is not prerequisite to 120B. Descriptive analysis of morphological and syntactic structures in natural languages; emphasis on insight into the nature of such structures rather than linguistic formalization.

Mr. Bedell, Mr. Bright, Mr. Stowell

**125. Semantics.** Prerequisite: course 120B. A survey of the most important theoretical and descriptive claims about the nature of meaning.

Ms. Thompson

**127. Syntactic Typology and Universals.** Prerequisite: course 100. A study of the essential similarities and differences among languages in the 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 is presented and analyzed.

Mr. Keenan, Ms. Thompson

**130. Child Language Acquisition: Introduction.** Prerequisites: courses 100, 120A, 120B, or consent of instructor. A survey of contemporary research and theoretical perspectives in the acquisition of language. Emphasis on linguistic interpretation of existing data, with some attention to relationship with second-language learning, cognitive development, and other topics. Includes discussion of acquisition of English and other languages and universals of linguistic development. Ms. Keating

**CM135. Theoretical Issues in Disorders of Language Development.** (Same as Psychiatry CM135.) Lecture, two hours; discussion, two hours. Prerequisites: courses 1 or 100, and 130, or consent of instructor. Introduction to the field of language disorders of children. The course deals primarily with some clinical syndromes which are associated with delayed or deviant language acquisition: aphasia, autism, mental retardation. Theories regarding etiology and the relationship of these disorders to each other are examined. Such questions as the relationship of cognition to linguistic ability are considered. Concurrently scheduled with Psychiatry CM237/Linguistics CM235. Graduate students are expected to apply more sophisticated knowledge and produce a research paper of greater depth.

**140. Linguistics in Relation to Language Teaching.** Prerequisites: courses 120A, 120B. Aspects of linguistics in relation to the teaching of language, with particular focus on the special problems entailed in the teaching of non-European languages. Mr. Stockwell

**145. Introduction to Computation in Linguistics.** Prerequisites: courses 100, 120A, 120B, Computer Science 10C or 10F, and 20, or consent of instructor. Introduction to the uses to which computers are put in linguistics and to such applications as mechanical translation, syntactic parsing, grammar testing, and information retrieval.

**M146. Language in Culture.** (Same as Anthropology M140.) Prerequisite: upper division standing or consent of instructor. The study of language as an aspect of culture; the relation of habitual thought and behavior to language; and language and the classification of experience. The course offers a holistic approach to the study of language and emphasizes the relationship of linguistic anthropology to the fields of biological, cultural, and social anthropology, as well as archaeology. Mr. Kroskrity

**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. A survey of the Indo-European languages from ancient to modern times; their relationships and chief characteristics. Mr. Anttila

**160. History of Linguistics through the 19th Century.** Prerequisites: courses 120A, 120B. Historical survey of the development of linguistics from Panini through the 19th century, including approaches to grammar, phonology, and language universals. Mr. Anttila, Mr. Bedell

**164. Modern Theories of Language.** Prerequisites: courses 120A, and 120B or 127. A critical and historical survey of some of the central claims and types of supporting evidence put forward by transformational theory and by at least one other influential school of contemporary linguistics. About one-third of the course deals with phonology, the remainder with syntax and semantics. Students who plan to take courses C165A, C165B should not take 164. Mr. Bedell, Mr. Schachter, Mr. Stowell

**C165A. Linguistic Theory: Phonology.** Prerequisite: course 120A. Recommended for students who plan to do graduate work in linguistics. The theory of generative phonology; the form of phonological rules; formal and substantive phonological universals. Concurrently scheduled with course C200A. While the topics of coverage are the same for undergraduate and graduate students, the depth of reading required of graduate students is greater, with more primary sources included. Also, graduate students are expected to produce a substantially deeper and more thorough research paper. Mr. Anderson, Mr. Hayes

**C165B. Linguistic Theory: Grammar.** Prerequisite: course 120B or 127. Recommended for students who plan to do graduate work in linguistics. The form of grammars; word formation and sentence formation; formal and substantive universals in syntax; relation between syntax and semantics. Concurrently scheduled with course C200B. While the topics of coverage are the same for undergraduate and graduate students, the depth of reading required of graduate students is greater, with more primary sources included. Also, graduate students are expected to produce a substantially deeper and more thorough research paper. Mr. Schachter, Mr. Stowell

**170. Language and Society: Introduction to Sociolinguistics.** Prerequisite: course 100 or consent of instructor. Study of the patterned covariation of language and society; social dialects and social styles in language; problems of multilingual societies. Mr. Du Bois

**175. Linguistic Change in English.** Prerequisites: courses 110, 120A, 120B. Principles of linguistic change as exemplified through a detailed study of the history of English pronunciation, lexicon, and syntax. Mr. Stockwell

**C180. Mathematical Backgrounds for Linguistics.** Prerequisites: courses 120A, 120B. Prior mathematics knowledge is 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 quarter. Concurrently scheduled with course C208. Mr. Keenan

**195. Senior Essay.** Prerequisite: consent of instructor. Limited to senior linguistics majors. An extended piece of writing is undertaken on a linguistic topic selected by the student to be completed under the supervision of a faculty member. Consult the professor in charge to enroll.

**197. Special Topics in Linguistics.** Prerequisite: course 1 or 100 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, and consent of instructor. May be repeated for credit.

## Graduate Courses

**C200A. Linguistic Theory: Phonology.** Prerequisite: course 120A. Recommended for students who plan to do graduate work in linguistics. The theory of generative phonology; the form of phonological rules; formal and substantive phonological universals. Concurrently scheduled with course C165A. While the topics of coverage are the same for undergraduate and graduate students, the depth of reading required of graduate students is greater, with more primary sources included. Also, graduate students are expected to produce a substantially deeper and more thorough research paper. Mr. Anderson, Mr. Hayes

**C200B. Linguistic Theory: Grammar.** Prerequisite: course 120B or 127. Recommended for students who plan to do graduate work in linguistics. The form of grammars; word formation and sentence formation; formal and substantive universals in syntax; relation between syntax and semantics. Concurrently scheduled with course C165B. While the topics of coverage are the same for undergraduate and graduate students, the depth of reading required of graduate students is greater, with more primary sources included. Also, graduate students are expected to produce a substantially deeper and more thorough research paper. Mr. Schachter, Mr. Stowell

**201A. Phonological Theory: Current Issues.** Prerequisite: course C165A/C200A. Survey of current issues in phonological theory. Mr. Anderson, Mr. Hayes

**201B. Phonological Theory in the 20th Century.** Prerequisite: course C165A/C200A. Survey of the development of phonological theory in the 20th century. Mr. Anderson, Mr. Bedell

**202. Theory of Language Change.** Prerequisite: course 110. Survey of current issues in language change. Mr. Anttila, Ms. Munro, Mr. Schuh, Mr. Stockwell

**203. Theory of Phonetics.** Prerequisite: course 120A. The preliminaries to speech analysis. Functional anatomy of the vocal organs; fundamental principles of acoustics and of the acoustic theory of speech production; issues in the perception of speech; the nature and design of feature systems for phonetic and phonological analysis. Mr. Anderson, Ms. Keating, Mr. Ladefoged

**C204. Experimental Phonetics.** Lecture, four hours; laboratory, two hours. Prerequisite: course 103. Survey of the principal techniques of experimental phonetics. Use of laboratory equipment for recording and measuring phonetic phenomena. Concurrently scheduled with course C104. Graduate students are expected to produce a substantial research paper. Mr. Anderson, Ms. Fromkin, Ms. Keating, Mr. Ladefoged

**206A. Syntactic Theory: Current Issues in Formal Syntax.** Prerequisite: course C165B/C200B. Survey of current issues in formal syntactic theory. Mr. Schachter, Mr. Stowell

**206B. Syntactic Theory: Current Issues in Functional and Typological Approaches to Syntax.** Prerequisite: course C165B/C200B. Survey of current issues in functional and typological approaches to syntax. Mr. Du Bois, Ms. Thompson

**207. Semantic Theory.** Recommended prerequisite: course C180 or equivalent. Approaches to the study of meaning. Different offerings of the course approach semantics from different theoretical perspectives (e.g., formal semantics, functional semantics, interpretive semantics). May be repeated for credit with topic change. Mr. Du Bois, Mr. Keenan

**C208. Mathematical Backgrounds for Linguistics.** Prerequisites: courses 120A, 120B. Corequisite: course C200B. Prior mathematics knowledge is 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 quarter. Concurrently scheduled with course C180. Graduate students are expected to complete additional problem sets. Mr. Keenan

**210A. Field Methods I (6 units).** Prerequisites: courses C165A/C200A, C165B/C200B. A language unknown to members of the class is analyzed from data elicited from a native speaker of the language. Term papers are 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 quarter. Because different languages are investigated in different years, course 210B can only be taken as a direct continuation of 210A in the same year. When there are multiple sections, continuation must be in the same section. May be repeated for credit with topic change.

Mr. Bright, Ms. Munro, Mr. Schachter

**220. Linguistic Areas.** Prerequisites: courses 120A, and 120B or 127. Recommended: courses C165A/C200A and C165B/C200B. Analysis and classification of languages spoken in a particular area (e.g., Africa, the Balkans, South Asia, Southeast Asia, Australia, Aboriginal North America, Aboriginal Latin America, Far East, etc.). May be repeated for credit with topic change.

**225. Linguistic Structures.** Prerequisites: courses 120A, and 120B or 127. Recommended: courses C165A/C200A and C165B/C200B. 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.

**CM235. Theoretical Issues in Disorders of Language Development.** (Same as Psychiatry CM237.) Lecture, two hours; discussion, two hours. Prerequisites: courses 1 or 100, and 130, or consent of instructor. Introduction to the field of language disorders of children. The course deals primarily with some clinical syndromes which are associated with delayed or deviant language acquisition: aphasia, autism, mental retardation. Theories regarding etiology and the relationship of these disorders to each other are examined. Such questions as the relationship of cognition to linguistic ability are considered. Concurrently scheduled with Psychiatry CM135/Linguistics CM135. Graduate students are expected to apply more sophisticated knowledge and produce a research paper 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 and seminars numbered 250 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).** Prerequisite: course C165A/C200A. Courses 201A and/or 203 may be required. Specialized topics in phonetics and phonology. May not be applied toward the 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).** Prerequisite: course C165B/C200B. Course 206A, 206B, or 207 may be required. Specialized topics in syntax and semantics. May not be applied toward the 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 the 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).** Prerequisites: courses C165A/C200A, C165B/C200B, consent of instructor. Course 201A, 201B, 202, 203, 206A, 206B, or 207 may be required. Individual proseminars deal with such topics as child language, sociolinguistics, history of linguistic theory, neurolinguistics, languages of the world, psycholinguistics, etc. May not be applied toward the 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 C165A/C200A. Courses 201A and/or 203 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 or 4 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 C165B/C200B. Courses 206A, 206B, and/or 207 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 or 4 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 or 4 units).** Prerequisite: course 258A. Specialized topics in language variation. May be repeated for credit.

**259A. Topics in Linguistics II: Proseminar.** Prerequisites: courses C165A/C200A, C165B/C200B, consent of instructor. Course 201A, 201B, 202, 206A, 206B, or 207 may be required. Individual proseminars deal with such topics as child language, sociolinguistics, history of linguistic theory, neurolinguistics, languages of the world, 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 or 4 units).** Prerequisite: course 259A. Individual proseminars deal with such topics 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 two units credit by students who have been formally admitted to the doctoral program only. All others must enroll for four units.

**260A-260B-260C. Seminar in Phonetics (2 or 4 units).** Discussion, three hours. Prerequisite: consent of instructor. Each course may be taken independently for credit. May not be applied toward the M.A. or Ph.D. degree requirements when taken for two units. May be repeated for credit. S/U grading.

**261A-261B-261C. Seminar in Phonology (2 or 4 units).** Discussion, three hours. Prerequisite: consent of instructor. Each course may be taken independently for credit. May not be applied toward the M.A. or Ph.D. degree requirements when taken for two units. May be repeated for credit. S/U grading.

**262A-262B-262C. Seminar in Syntax and Semantics (2 or 4 units).** Discussion, three hours. Prerequisite: consent of instructor. Each course may be taken independently for credit. May not be applied toward the M.A. or Ph.D. degree requirements when taken for two units. May be repeated for credit. S/U grading.

**263A-263B-263C. Seminar in Language Variation (2 or 4 units).** Discussion, three hours. Prerequisite: consent of instructor. Each course may be taken independently for credit. May not be applied toward the M.A. or Ph.D. degree requirements when taken for two units. May be repeated for credit. S/U grading.

**264A-264B-264C. Seminar in Special Topics in Linguistic Theory (2 or 4 units).** 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 the 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 the 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. A teaching apprenticeship under the 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.

**411A-411B-411C. Research Orientation (1 unit each).** (Formerly numbered 411A-411B.) Prerequisite: graduate standing. Sequence of lectures by all faculty of the department, plus faculty from closely related departments and programs, to acquaint new graduate students with the research directions and resources of the department and elsewhere on campus. May not be applied toward the M.A. or Ph.D. requirements. S/U grading.

**422. Practicum in Phonetic Data Analysis (2 units).** Prerequisite: graduate standing. Workshop in the examination of phonetic data, such as sound spectrograms, oscillographic records, and computer output. May not be applied toward the M.A. or Ph.D. degree requirements. S/U grading.

Ms. Keating, Mr. Ladefoged

**433. The Use of Computers in Linguistics (2 units).** Prerequisite: graduate standing in linguistics. Guided use of the departmental computer facilities. May not be applied toward the M.A. or Ph.D. degree requirements. S/U grading.

Mr. Hayes, Mr. Ladefoged

**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. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. 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 the M.A. course requirements. May be repeated for credit. S/U grading.

**596B. Directed Linguistic Analysis (1 to 8 units).** Prerequisite: completion of the 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 the quarters in which students expect to take the comprehensive or qualifying examination. May not be applied toward the 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 the 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 the 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. The major language of East Africa, particularly Tanzania. Mr. Hinnebusch

**2A-2B-2C. Intermediate Swahili.** Prerequisites: courses 1A-1B-1C or consent of instructor. Mr. Hinnebusch

**7A-7B-7C. Elementary Zulu.** Lecture, five hours. The most widely spoken of the Nguni languages of South Africa, mutually intelligible with other members of this group. Mr. Kunene

**8A-8B-8C. Intermediate Zulu.** Prerequisites: courses 7A-7B-7C or consent of instructor. Mr. Kunene

**9A-9B-9C. Elementary Xhosa.** Lecture, five hours. A major Nguni language of South Africa, mutually intelligible with other members of this group. Mr. Kunene

**10A-10B-10C. Intermediate Xhosa.** Prerequisites: courses 9A-9B-9C or consent of instructor. Mr. Kunene

**11A-11B-11C. Elementary Yoruba.** Lecture, five hours. Prerequisite: consent of instructor. The major language of Western Nigeria.

**12A-12B-12C. Intermediate Yoruba.** Prerequisites: courses 11A-11B-11C or consent of instructor.

**13A-13B-13C. Elementary Igbo.** Lecture, five hours. The major language of Eastern Nigeria.

**14A-14B-14C. Intermediate Igbo.** Prerequisites: courses 13A-13B-13C or consent of instructor.

**15A-15B-15C. Elementary Akan.** Lecture, five hours. The major language of Ghana.

**21A-21B-21C. Elementary Fula.** Lecture, five hours. The language of the Fulani, spoken in widely scattered areas of West Africa, including major concentrations in Guinea and the Nigeria-Cameroon area.

**31A-31B-31C. Elementary Bambara.** Lecture, five hours. Prerequisite: consent of instructor. The major language of Mali, also widely spoken in adjacent parts of West Africa; includes Maninka (Malinke), Dyula, and other mutually intelligible dialects.

**32A-32B-32C. Intermediate Bambara.** Prerequisites: courses 31A-31B-31C or consent of instructor.

**41A-41B-41C. Elementary Hausa.** Lecture, five hours. The major language of Northern Nigeria and adjacent areas. Mr. Schuh

**42A-42B-42C. Intermediate Hausa.** Prerequisites: courses 41A-41B-41C or consent of instructor. Mr. Schuh

## Upper Division Courses

**103A-103B-103C. Advanced Swahili.** Prerequisites: courses 2A-2B-2C or consent of instructor. Readings in Swahili literature and the contemporary press. Discussions mainly in Swahili.

Mr. Hinnebusch

**133A-133B-133C. Advanced Bambara.** Prerequisites: courses 32A-32B-32C or consent of instructor. Readings in Bambara literature and the contemporary press. Discussions mainly in Bambara.

**143A-143B-143C. Advanced Hausa.** Prerequisites: courses 42A-42B-42C or consent of instructor. Readings in Hausa literature and the contemporary press. Discussions mainly in Hausa. Mr. Schuh

**150A-150B-150C. African Literature in English Translation.** Narrative and didactic oral prose and poetry of sub-Saharan Africa and written prose and poetry of South Africa. Each course may be taken independently for credit. Mr. Kunene

**190. Survey of African Languages.** An introduction to the languages of Africa, their distribution and classification, and their phonological and grammatical structures; illustrations from several representative languages, with appropriate language laboratory demonstrations and drills.

**192. Comparative Studies in African Languages.** Prerequisites: two quarter courses in an African language or course 190. Recommended prerequisite or corequisite: Linguistics 110. Comparison of structural and lexical features of a group of closely related languages, such as Southern Bantu, Southwestern Mande, Akan, or Senufo.

**199. Special Studies in African Languages (1 to 6 units).** Prerequisite: consent of instructor. Instruction or supervised research based on the needs of the individual student in any language or group of languages for which appropriate facilities are available.

## Graduate Courses

**201A-201B. Comparative Niger-Congo.** Prerequisites: Linguistics C165A, C165B, 220. Recommended: three quarter courses in one Niger-Congo language selected from courses 1A through 32C, 199. Investigation of relationships within the Niger-Congo family as a whole or within selected branches of the family.

**202A-202B-202C. Comparative Bantu.** Prerequisites: Linguistics C165A, C165B, 220. Recommended: three quarter courses in one Bantu language selected from courses 1A through 10C, 199. Investigation of relationships among the Bantu languages; the extent and external relationships of Bantu.

Mr. Hinnebusch

**270. Seminar in African Literature.** Mr. Kunene

**596. Directed Studies (1 to 8 units).** Directed individual study or research. Four units may be applied toward the 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. The language of the Incas and its present-day dialects, as spoken in Andean South America.

## Related Courses in Other Departments (Other than Language Courses)

**Anthropology 143A.** Field Methods in Linguistic Anthropology: Practical Phonetics

**143B.** Field Methods in Linguistic Anthropology: Syntax, Semantics, Textual Cohesion

**Arabic (Near Eastern Languages) 280.** Structure of Classical Arabic

**Armenian (Near Eastern Languages) 210.** History of the Armenian Language

**Dutch-Flemish and Afrikaans (Germanic Languages) 234.** The Structure of Modern Standard Dutch

**East Asian Languages and Cultures 175.** The Structure of the Japanese Language

**223. Seminar: Linguistic Analysis of Japanese Narratives**

**English 121.** The History of the English Language  
**122.** Introduction to the Structure of Present-Day English

**210.** History of the English Language

**M215. Advanced Seminar in the Structure of Present-Day English**

**218.** Celtic Linguistics

**240.** Studies in the History of the English Language

**241.** Studies in the Structure of the English Language

**English as a Second Language 241K.** Contrastive and Error Analysis in the ESL Context

**260K.** Psycholinguistics and Language Teaching

**280K.** Language Policy in Developing Countries

**Folklore and Mythology 217.** Folk Speech

**French 204A.** Phonology and Morphology from Vulgar Latin to French Classicism

**204B.** Syntax and Semantics from Vulgar Latin to French Classicism

**206.** French Linguistics

**German (Germanic Languages) 137.** Language and Linguistics

**217.** History of the German Language

**230.** Survey of Germanic Philology

**251.** Seminar in Syntax and Phonology of German

**252.** Seminar in Historical and Comparative German 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.** Seminar in Indo-European Linguistics

**Iranian (Near Eastern Languages) 211A-211B.** Modern Iranian Dialects

**Italian 259A.** History of the Italian Language

**259B.** The Structure of Modern Italian

**259C.** Italian Dialectology

**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) 100.** Phonology and Pronunciation

**103.** Syntax

**118.** History of the Portuguese and Spanish Languages

**M203A-M203B.** The Development of the Portuguese and Spanish Languages

**M251.** Studies in Galego-Portuguese and Old Spanish

**Psychiatry 249A-249B.** Language Disorders of Childhood

**257A-257B-257C.** Diagnostics and Therapeutics of Language Disabilities

**Psychology 122.** Language and Communication

**123.** Psycholinguistics

**260A-260B.** Proseminar in Cognitive Psychology

- Russian (Slavic Languages)** 121. Russian Phonology  
 122. Russian Morphology  
 123. Historical Commentary on Modern Russian  
 204. Introduction to the History of the Russian Literary Language  
 241. Topics in Russian Phonology  
 242. Topics in Russian Morphology  
 243. Topics in Historical Russian Grammar  
 263. Russian Dialectology  
 264. The History of the Russian Literary Language  
 265. Advanced Russian Syntax  
 266. Russian Lexicology  
**Semitics (Near Eastern Languages)** 209A-209B-209C. Comparative Study of the Ethiopian Languages  
 280A-280B-280C. Seminar in Comparative Semitics  
 290A-290B-290C. Comparative Morphology of the Semitic Languages  
**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 in Slavic Linguistics  
 282. Seminar in Structural Analysis  
**Slovak (Slavic Languages)** 222. The Structure of Slovak  
**Sociology** C144A. Conversational Structures I  
 266. Selected Problems in the Analysis of Conversation  
 267. Selected Problems in Communication  
**Spanish (Spanish and Portuguese)** 100A. Introduction to the Study of Spanish Grammar: Phonology and Morphology  
 100B. Introduction to the Study of Spanish Grammar: Syntax  
 115. Applied Linguistics  
 118A. The History of Portuguese and Spanish: Phonology  
 118B. The History of Portuguese and Spanish: Morphology and Syntax  
 M203A-M203B. The Development of the Portuguese and Spanish Languages  
 204A-204B. Transformational Grammar  
 206. Linguistics  
 209. Dialectology  
 M251. Studies in Galegan-Portuguese and Old Spanish  
 256A-256B. Studies in Linguistics and Dialectology  
**Turkic Languages (Near Eastern Languages)** 230A-230B-230C. A Historical and Comparative Survey of the Turkic Languages

## Mathematics

6356 Math Sciences, 825-4701

### Professors

- Richard F. Arens, Ph.D.  
 Donald G. Babbitt, Ph.D., *Vice Chair, Undergraduate*  
 Kirby A. Baker, Ph.D.  
 Robert J. Blattner, Ph.D.  
 Robert F. Brown, Ph.D.  
 David G. Cantor, Ph.D.  
 C. C. Chang, Ph.D.  
 S. Y. Alice Chang, Ph.D.  
 S. Y. Cheng, Ph.D.  
 Earl A. Coddington, Ph.D.  
 Philip C. Curtis, Jr., Ph.D.  
 Henry A. Dye, Ph.D.  
 Robert Edwards, Ph.D.  
 Edward Effros, Ph.D., *Vice Chair, Graduate*  
 Richard S. Elman, Ph.D.  
 Bjorn Engquist, Ph.D.  
 Gregory I. Eskin, Ph.D.  
 Hector Fattorini, Ph.D.  
 Thomas S. Ferguson, Ph.D.  
 Theodore Gamelin, Ph.D.  
 John Garnett, Ph.D.  
 David Giesecker, Ph.D.  
 Basil Gordon, Ph.D.  
 Mark Green, Ph.D.  
 Robert E. Greene, Ph.D.  
 Nathaniel Grossman, Ph.D.  
 Alfred W. Hales, Ph.D., *Vice Chair, Administrative*  
 Alfred Horn, Ph.D.  
 Robert I. Jennrich, Ph.D.  
 Paul J. Koosis, Ph.D.  
 Thomas M. Liggett, Ph.D.  
 D. Anthony Martin  
 Ronald Miech, Ph.D., *Director, Program in Computing*  
 John J. Millson, Ph.D.  
 Yiannis N. Moschovakis, Ph.D., *Chair*  
 Barrett O'Neill, Ph.D.  
 Stanley J. Osher, Ph.D.  
 Sidney Port, Ph.D.  
 James V. Ralston, Jr., Ph.D.  
 Raymond M. Redheffer, Ph.D.  
 Bruce L. Rothschild, Ph.D.  
 Murray Schacher, Ph.D.  
 Lloyd S. Shapley, Ph.D.  
 Robert Steinberg, Ph.D.  
 Masamichi Takesaki, Ph.D.  
 V. S. Varadarajan, Ph.D.  
 James White, Ph.D.  
 N. Donald Ylvisaker, Ph.D.  
 John W. Green, Ph.D., *Emeritus*  
 M. R. Hestenes, Ph.D., *Emeritus*  
 Paul G. Hoel, Ph.D., *Emeritus*  
 S. T. Hu, Ph.D., D.Sc., *Emeritus*  
 Paul B. Johnson, Ph.D., *Emeritus*  
 Lowell J. Paige, Ph.D., *Emeritus*  
 William T. Puckett, Ph.D., *Emeritus*  
 Leo Sario, Ph.D., *Emeritus*  
 Robert H. Sorgenfrey, Ph.D., *Emeritus*  
 Angus E. Taylor, Ph.D., *Emeritus*  
 Frederick A. Valentine, Ph.D., *Emeritus*

### Associate Professors

- L. Pamela Cook-Ioannidis, Ph.D.  
 Rodolfo De Sapio, Ph.D.  
 Richard T. Durrett, Ph.D.  
 David Gillman, Ph.D.  
 Charles G. Lange, Ph.D.  
 Ker-Chau Li, Ph.D., *Acting*  
 John R. Steel, Ph.D.

### Assistant Professors

- Kenneth P. Bube, Ph.D.  
 Robert K. Lazarsfeld, Ph.D.  
 Daniel Michelson, Ph.D.

### Lecturers

- David Cohen, M.A.  
 Herbert Enderton, Ph.D.  
 John McGhee, M.A.

### Adjunct and Hedrick Assistant Professors

- Daniel Berend, Ph.D., *Hedrick*  
 Edmond Griffin, Ph.D., *Hedrick*  
 Marcia Groszek, Ph.D., *Adjunct*  
 Steven Hudson, Ph.D., *Hedrick*  
 Randall LeVeque, Ph.D., *Hedrick*  
 John Mitchell, Ph.D., *Hedrick*  
 Thomas Ransford, Ph.D., *Hedrick*

## 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 aims to provide courses of study that will 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

### Preliminary Examination in Mathematics

If you wish to enroll in Chemistry 11A and/or Mathematics 1B, 3A, or 31A, you are required to pass the mathematics section of the Chemistry/Mathematics Preliminary Examination. Students with three years or less of high school mathematics must take Level I of this examination; students with three and one-half years or more must take Level II.

This examination may be taken at any one of several times. Students participating in the summer Orientation Program may take the examination on the first morning of their three-day orientation to UCLA. It will also be given on Tuesday, September 25, 1984, for Fall Quarter 1984; Tuesday, November 13, 1984, for Winter Quarter 1985; and Tuesday, February 19, 1985, for Spring Quarter 1985. For information contact the Undergraduate Mathematics Office, 6375 Math Sciences (206-6857).

### Advanced Placement in Calculus

Students who have taken the Advanced Placement (AP) Calculus AB test and obtained a score of 3 or higher receive five units of credit and Mathematics 31A equivalency. Those who take the BC test and obtain a score of 3 or higher receive ten units of credit and Mathematics 31A, 31B equivalency.

If you have 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 Undergraduate Mathematics Office for further details.

## Transfer Students

Transfer students, and UCLA students with 60 or more quarter units of credit, who wish to change their major to one of those offered by the department must have completed 12 quarter units of calculus and have a minimum grade of C in all college-level courses completed. Students who wish to enter the mathematics/computer science major must satisfy further requirements (see "Mathematics/Computer Science" following this departmental section).

## Undergraduate Majors

The Mathematics Department offers three majors: mathematics, applied mathematics, and mathematics/applied science. In addition two programs are offered in cooperation with the School of Engineering and Applied Science: the mathematics/computer science and mathematics/system science majors, described following this departmental listing.

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, engineering, and the physical sciences; and the mathematics/applied science major for individuals who wish to combine the study of mathematics with another particular field of interest. The department also offers an actuarial program, as well as training for those interested in teaching mathematics.

Courses taken to fulfill any of the requirements for any of the mathematics majors must be taken for a letter grade.

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).

## Bachelor of Arts in Mathematics

### Preparation for the Major

**Required:** Mathematics 31A, 31AL, 31B, 31BL, 32A, 32B, 33A, 33B, and three courses in physical sciences from Chemistry 11, Physics 6 or 8 series, Astronomy 81, 82, Atmospheric Sciences 10H, or approved upper division courses in the physical sciences outside of mathematics. All courses required as preparation for the major must be passed with a minimum overall GPA of 2.0, and each of the mathematics courses must be passed with a grade of C — or better.

### The Major

**Required:** Mathematics 110A, 115A, 120A, 131A-131B, and at least five additional courses from 106 through 199. These ten 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, 31AL, 31B, 31BL, 32A, 32B, 33A, 33B, Physics 8A, 8C, and one additional course from Physics 8B, 8D, 8E, Chemistry 11A, 11B. All courses must be passed with a minimum grade of C —, and you must have a minimum overall GPA of 2.0 for these courses.

### The Major

**Required:** Mathematics 115A, 131A, either 131B or 132, 142; two two-quarter sequences from two of the following categories: *numerical analysis* — courses 140A-140B or 141A-141B, *probability and statistics* — courses 150A-150B or 152A-152B, *differential equations* — courses 135A-135B; four additional courses from 110A through 199 (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 Arts 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 member, design their own program. In the past, mathematics/applied science majors have combined the study of mathematics with fields such as physics, chemistry, biochemistry, economics, geography, sociology, and anthropology. Two popular variants, the actuarial plan and the mathematics/economics plan, are described later.

### Preparation for the Major

**Required:** Mathematics 31A, 31AL, 31B, 31BL, 32A, 32B, 33A, 33B. Each of these courses must be passed with a minimum grade of C. Additional preparation, varying with the individual program, may be required.

### The Major

**Required:** Fourteen courses, seven in mathematics selected from Mathematics 110A through 199 and seven upper division courses in a related field selected from one or two departments. The seven mathematics courses must be passed with an overall GPA of 2.0, as must the seven courses outside mathematics.

If you are interested in this major, you should apply during your sophomore year. A proposed program is drawn up in consultation with a faculty member and is then forwarded for approval by the mathematics/applied science curriculum committee.

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 quarter in which you plan to enter the program, you will not be admitted to the major.

### Actuarial Plan

The actuarial plan, designed especially for students interested in actuarial science, is a variant of the mathematics/applied science major.

**Preparation for the Major:** Mathematics 31A, 31AL, 31B, 31BL, 32A, 32B, 33A, 33B, Economics 1 and 2, or 100. Economics 100 may not be applied as one of the upper division courses for the major. You must have a minimum overall 2.5 GPA in the six calculus courses.

**The Major:** Seven mathematics courses, including Mathematics 115A, either 140A or 141A, 144, 152A, 152B, and two courses from 113, either 140B or 141B, 151, M153; seven outside courses, including Economics 101A, 101B, 102, 147A, 160, and two courses from Management 130, 190, English 131, Economics 145 through 199.

### Mathematics/Economics Plan

**Preparation for the Major:** Mathematics 31A, 31AL, 31B, 31BL, 32A, 32B, 33A, 33B, Economics 1 and 2, and one other social science course.

**The Major:** Seven mathematics courses, including Mathematics 115A, either 110A or 117, 131A, 144, either 150A or 152A, and two courses from 110A through 199; seven economics courses, including Economics 101A, 101B, 102, 144, 145, 147A, and one course from 147A through 199.

## Specialization in Computing

Majors in mathematics, applied mathematics, or mathematics/applied 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 10, 20, 30, 60, and Mathematics 61 with a minimum grade of C in each course, (3) completing at least two courses from Mathematics 141A, 141B, 169, 169HS. You will graduate with a bachelor's degree in your major and a specialization in computing.

## The Teaching of Mathematics

The department offers a major in the teaching of mathematics. However, because of insufficient demands, several of the courses required for the major have not been offered during the past two years.

If you are interested in teaching mathematics in the public schools, you must show competence in the field of mathematics (individuals who have earned any one of the degrees of-

ferred by the Mathematics Department are deemed to be competent in the field). You must also complete a group of professional courses in education. For more information, contact the Office of Student Services, Graduate School of Education, 201 Moore Hall.

### 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 (206-1286) for further details.

### Honors Program

Majors who wish to graduate with honors should apply for admission to the honors program. You may enter the program 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 Mathematics 110B-110C or 110BH-110CH and 190 and earning an overall 3.6 GPA in approved upper division and graduate mathematics courses.

If you complete the program, you will be awarded honors on graduation; if you demonstrate exceptional achievement, you will be awarded highest honors.

### Duplications

Credit will be given for at most one course in each of the following groups: (1) 3A, 4A, 31A, 31AH; (2) 3B, 4B, 31B, 31BH; (3) 3C, 3E; (4) Mathematics 140A, 141A, System Science 124A; (5) Mathematics 144, System Science 129A; (6) Mathematics 150A, 152A, System Science 120A; (7) mathematics honors courses and their regular course counterparts.

## Graduate Study

### Admission

Prospective graduate students in mathematics need not have an undergraduate mathematics major, but they 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, you must have earned in these upper division mathematics courses a cumulative grade-point average of at least 3.2; for direct admission to the doctoral program, at least 3.5.

If you have already obtained a master's degree, you must have maintained an average of better than 3.6 in graduate study.

You must take the Graduate Record Examination Aptitude and Advanced Tests and must submit at least two letters of recommendation from mathematicians who know your recent work.

A booklet, *Graduate Studies in Mathematics at UCLA*, is available from the Graduate Adviser, Department of Mathematics, UCLA, Los Angeles, CA 90024.

## Master of Arts Degree

You may earn the M.A. degree under the comprehensive examination plan, either in the basic (*pure mathematics*) program or an interdisciplinary program in *applied mathematics*.

### Foreign Language Requirement

There is no foreign language requirement for master's students.

### 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 program 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.

You 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 you receive a B or better in these courses (not the grade S).

### Comprehensive Examination Plan

For the basic (*pure mathematics*) M.A., the comprehensive examination consists of two written four-hour tests, one in algebra and one in analysis. For students in the applied mathematics program, the comprehensive examination consists of a four-hour written test in analysis and a similar test selected from numerical analysis, methods of applied mathematics, or probability/statistics. These tests, prepared by a comprehensive examination committee, are offered early in the Fall Quarter or toward the end of the Spring Quarter. You may take one or both of the examinations at one sitting and may retake them any number of times until you pass them.

## Master of Arts in Teaching

The M.A.T. program serves the needs of present and prospective mathematics teachers in high school and junior college.

### Foreign Language Requirement

There is no foreign language requirement for M.A.T. students.

### Course Requirements

Eleven courses are required, as follows.

**Core Courses:** You must take Mathematics 201A-201B-201C and 202A-202B. Normally, you will also take one quarter of course 596 while fulfilling the essay requirement described below.

**Credential Requirements:** If you plan to teach in secondary schools and do not already have valid credentials for such teaching, you should enroll in the single subject credential program in the Graduate School of Education. Of the courses required by this program, you may receive M.A.T. credit only for the following: Education 100A, 100B, 112, 312, 330A, and 330B. Actual receipt of the credential is not a degree requirement. You should check with the Graduate School of Education for a full and up-to-date description of credential requirements and should submit a Graduate School of Education application for admission to the credential program.

At present, no education courses or practice teaching are required for the community college credential. To qualify for this credential, it will be sufficient to have the M.A.T. degree.

In exceptional cases, an M.A.T. program may be individually designed for candidates for a credential other than the two already mentioned.

**Additional Courses:** Besides the six core courses described above, you must take a seventh upper division or graduate course in mathematics. Particularly recommended are Mathematics 106, 110B, 110C, 111A, 111B, 131B, 135A, and 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, such students may present for degree credit one course of a predominantly mathematical nature taken in another department.

You may not receive degree credit for Mathematics 370 or for any mathematics course numbered 100 through 109, except course 106. In addition, you may not receive degree credit for more than two quarters of course 596 or for more than two quarters of any 300-series courses.

**Essay Requirement:** You must prepare a master's essay on some subject in mathematics related to your prospective teaching. You will write this under the direction of a faculty member while enrolled in Mathematics 596.

### Teaching Experience

Teaching experience is not a formal requirement for the M.A.T. degree, although students working for a secondary credential must take the supervised teaching course. M.A.T. students are eligible for teaching assistantships.

### Comprehensive Examination Plan

In the M.A.T. program, you take one examination in mathematical subject matter and 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.

## Ph.D. Degree

Students may earn the Ph.D. degree in Mathematics at UCLA either in the classical, *pure mathematics* program or under an interdisciplinary program in *applied mathematics*. There are many possible choices of fields within both of these programs, and you 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.

## Foreign Language Requirement

You are required to pass two written departmental language examinations in French, German, or Russian (with the consent of the Graduate Vice Chair, students in the applied program may substitute a computer language project for one of the languages). Foreign students whose principal language of instruction in elementary and secondary education was not English may substitute English for one of the foreign languages, but their other language must be one of French, German, or Russian (even if they are in the applied program).

These examinations, offered in the Fall and Spring Quarters, require the translation of material in some basic field of mathematics without the use of a dictionary. They may be retaken any number of times until passed. At least one of the language examinations must be passed before taking the first oral qualifying examination, and the complete language requirement must be satisfied before taking the final oral examination.

## Course Requirements

In the pure mathematics program, you 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. You must also satisfy a *seminar participation requirement* within one year after passing the written qualifying examinations.

In the applied mathematics program, you 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.

## Qualifying Examinations

In the pure mathematics program, you are required to take four written qualifying examinations in the following fields: algebra, real analysis, complex analysis, and one field selected from geometry-topology, statistics-probability, logic, or numerical analysis. The examinations are given in the Fall or Spring Quarter. You must pass two examinations within a period of six registered quarters and all four examinations within a period of nine registered quarters after being admitted to graduate study.

In the applied mathematics program, you must pass four qualifying examinations. The first three consist of one written examination in applied real and complex analysis and two written examinations selected from three areas (applied differential equations, numerical analysis, and probability-statistics). Two of these three examinations are to be completed by the end of six quarters after being admitted to graduate study; the third by the end of nine quarters. The fourth qualifying examination, either written or oral, is in your specialized "outside" field, testing your competence at a research level.

After passing the four qualifying examinations, you may set up the doctoral committee which administers the University Oral Qualifying Examination for advancement to candidacy.

## Final Oral Examination

The final oral examination may be waived by the doctoral committee, with the approval of the Graduate Vice Chair.

## Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Lower Division Courses

**1A. Intermediate Algebra (No credit).** Lecture, five hours. Mathematics 1A displaces four units on the student's Study List but yields no credit toward a degree. May not be applied toward Letters and Science breadth requirements. Not open to students with credit for other mathematics courses. Designed for students requiring a review of elementary and intermediate algebra. Arithmetical operations on the real numbers, algebraic notation, polynomials, rational exponents, linear and quadratic equations and inequalities, coordinate geometry.

**1B. Precalculus.** Lecture, three hours; discussion two hours. Prerequisites: course 1A with a grade of C- or better, or two and one-half years of high school mathematics and successful completion of the Level II Chemistry/Mathematics Preliminary Examination. The function concept. Linear and polynomial functions and their graphs, zeros of polynomials. Inverse, exponential, and logarithmic functions. Trigonometric functions.

**2. Finite Mathematics for Social Science Students.** Prerequisite: course 1B or three years of high school mathematics. Finite mathematics consisting of elementary logic, sets, combinatorics, probability, vectors, and matrices.

**3A. Calculus for Life Science Students.** Lecture, three hours; discussion, one hour. Prerequisites: three and one-half years of high school mathematics (including trigonometry) and successful completion of the Level II Chemistry/Mathematics Preliminary Examination, or completion of course 1B with a grade of C- or better. Not open for credit to students with credit in another calculus sequence. Techniques and applications of the differential calculus.

**3B. Calculus for Life Science Students.** Prerequisite: course 3A with a grade of C- or better. Techniques and applications of the integral calculus.

**3C. Calculus for Life Science Students.** Prerequisite: course 3B with a grade of C- or better. Functions of several variables, vectors, partial differentiation, and multiple integration.

**3E. Calculus for Economics Students.** Lecture, three hours; discussion, two hours. Prerequisite: course 3A or 31A with a grade of C- or better. Not open for credit to students with credit for course 3C. Functions of several variables; techniques of graphing, partial derivatives, maxima and minima, Lagrange multipliers. Exponential functions.

**5. Introduction to Calculus.** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for courses 3A, 3E, or 31A. The course satisfies the Letters and Science quantitative reasoning requirement. A brief look at the source of many of the quantitative methods in the physical, biological, and social sciences. The concepts, techniques, and applications of the differential and integral calculus of polynomial, rational, and exponential functions. Applications emphasize the use of calculus in business and economics.

**31A. Calculus and Analytic Geometry.** Lecture, three hours; discussion, one hour. Prerequisites: at least three and one-half years of high school mathematics (including some coordinate geometry and trigonometry) and successful completion of the Level II Chemistry/Mathematics Preliminary Examination, or completion of course 1B with a grade of C- or better. Differential calculus and applications; introduction to integration.

**31AH-31BH. Calculus and Analytic Geometry (Honors Sequence).** Lecture, three hours; discussion, one hour. Prerequisites: successful completion of the Level II Chemistry/Mathematics Preliminary Examination or an additional honors placement examination, and consent of instructor. An honors sequence parallel to courses 31A, 31B.

**31AL. Laboratory in Scientific Computing (2 units).** Prerequisite or corequisite: course 31A. Students with credit for Computer Science 10C, 10F, or 10S may receive only one unit of credit for this course. Introduction to scientific computing and elementary numerical analysis. Evaluation of functions: finding zeros and extrema of functions. Interpolation. Linear equations. Introduction to the Basic and Pascal computer languages.

**31B. Calculus and Analytic Geometry.** Lecture, three hours; discussion, one hour. Prerequisite: course 31A with a grade of C- or better. Transcendental functions; methods and applications of integration.

**31BL. Laboratory in Scientific Computing (2 units).** Prerequisites: courses 31AL and 31B (31B may be taken concurrently). Students with credit for Computer Science 10C, 10F, or 10S may receive only one unit of credit for this course. Introduction to scientific computing and elementary numerical analysis. Numerical quadrature. Solution of differential equations. Least squares and orthogonal polynomials. Further study of the Pascal computer language and introduction to the Fortran computer language.

**32A. Calculus of Several Variables.** Lecture, three hours; discussion, one hour. Prerequisite: course 31B with a grade of C- or better. Introduction to differential calculus of several variables.

**32AH-32BH. Calculus of Several Variables (Honors Sequence).** Prerequisites: course 31BH or 31B with a grade of A and consent of instructor. An honors sequence parallel to courses 32A, 32B.

**32B. Calculus of Several Variables.** Lecture, three hours; discussion, one hour. Prerequisite: course 32A with a grade of C- or better. Introduction to the integral calculus of several variables.

**33A. Matrices and Differential Equations.** Prerequisite: course 32A or 32AH. Introduction to matrix theory; introduction to differential equations.

**33AH-33BH. Matrices, Differential Equations, and Infinite Series (Honors Sequence).** Prerequisites: course 32BH or 32B with a grade of A and consent of instructor. An honors sequence parallel to courses 33A, 33B.

**33B. Infinite Series.** Prerequisite: course 33A or 33AH or consent of instructor. Infinite sequences and series; complex numbers.



**38A-38B. Fundamentals of Arithmetic.** Lecture, three hours; laboratory, two hours. Designed for prospective elementary teachers (also see Mathematics 104). The real number system, its origins, development, structure, and use. Emphasis on understanding of arithmetic procedures. Laboratory includes experience with aids and models. **38A.** Prerequisites: sophomore standing, two years of high school mathematics. May not be applied toward Letters and Science breadth requirements. Counting numbers and other subsystems of the rational numbers; sets; operations; relations; algorithms; measurement and approximation; applications. **38B.** Prerequisite: course 38A. May not be applied toward Letters and Science breadth requirements. The real numbers, functions; relations; elementary ideas of number theory; probability and statistics; the microcomputer and simple instructional programs. Other topics appropriate for the elementary classroom.

**50. Elementary Statistics.** (Formerly numbered 50A-50B.) Lecture, three hours; discussion, one hour. Prerequisite: three years of high school mathematics or course 1B or consent of instructor. Not open to students with credit for Economics 40. Descriptive statistics, elementary probability, random variables, binomial and normal distributions. Large and small sample inference concerning means.

**61. Introduction to Discrete Structures.** Lecture, three hours; discussion, one hour. Prerequisites: courses 31A, 31B, and either 31AL and 31BL, or Computer Science 10C, 10F, or 10S. Discrete structures commonly used in computer science and mathematics, including sets and relations, permutations and combinations, graphs and trees, induction, Boolean algebras.

## Upper Division Courses

Mathematics 110A, 115A, 117, 120A, 131A-131B, 144, 152A, and 152B are offered each quarter. 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 Undergraduate Mathematics Office in February.

## General and Teacher Training

**100. The Nature of Mathematics.** Prerequisite: junior standing. Not open to mathematics, engineering, or physical science majors. Designed to acquaint students in the arts, humanities, and social sciences with the nature of modern mathematics and the mathematical method.

**101A-101B-101C. Topics in Algebra.** Prerequisite: course 32A. Course 101A is not open for credit to students with credit for course 110A or 117. A sequence intended primarily for prospective secondary teachers. Group theory, numbers and number systems, relations and equivalence, topics from elementary number theory, the rational numbers, integral domains, rings and fields, the real numbers, cardinals, complex numbers, polynomials, vector spaces, non-constructibility, nonsolvability. (Course sequence may not be offered every year.)

**102A-102B. Topics in Geometry.** Prerequisite: course 32A. A sequence intended primarily for prospective secondary teachers. Axiomatic methods, advanced topics in Euclidean geometry, hyperbolic and other geometries, constructions, symmetries, isometry and related topics, projective geometry, map coloring, Jordan curve theorem. (Course sequence may not be offered every year.)

**104. Fundamental Concepts of Geometry.** Lecture, three hours; discussion, one hour. Prerequisite: two years of high school mathematics including geometry. Designed for prospective elementary teachers (also see Mathematics 38A-38B). The following topics may be included: the number lattice and Pick's theorem; graphs of equations and relations in the Cartesian plane, including examples with a finite field; the Pythagorean theorem from several points of view; an introduction to the theory of area, volume, and similarity; regular polygons and polyhedra, regular tilings of the plane; enumerative and counting problems, including some in spaces of four or more dimensions; selected topics in topology such as the Euler characteristic of the plane; and an introduction to synthetic and analytic plane geometry. Although the primary emphasis is on the subject itself, rather than its social setting, in recent years the course has illustrated a number of class-tested teaching strategies that have been successful with school-age children.

**106. History of Mathematics.** Prerequisite: course 32A. Topics in the history of mathematics, with emphasis on the development of modern mathematics.

## Algebra, Number Theory, and Logic

**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 101A or 101B or 117. The 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 Sequence).** Prerequisite: consent of instructor. An honors sequence parallel to courses 110A-110B-110C.

**111A-111B-111C. Theory of Numbers.** Lecture, three hours; discussion, one hour. Prerequisite: course 115A or consent of instructor. Divisibility, congruences, Diophantine analysis, selected topics in the theory of primes, algebraic number theory, Diophantine equations.

**112A-112B-112C. Set Theory and Logic.** Lecture, three hours; discussion, one hour. Prerequisites: courses 32B, 33B. **112A** deals with informal axiomatic set theory presented as a foundation for modern mathematics. **112B** and **112C** cover predicate logic, formalized theories; Gödel's completeness and incompleteness theorems.

**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's theorem.

**114A-114B. Computability and Logic.** (Formerly numbered 114.) Lecture, three hours; discussion, one hour. Prerequisite: any course from Mathematics 110A through 198. Turing machines and recursive functions; Church's thesis; Gödel numbering; unsolvable problems; relative recursiveness and the arithmetical hierarchy. Predicate logic and formal number theory; Gödel's incompleteness theorem; undecidability results. Selected topics from the theory of automata and computational complexity.

**115A. Linear Algebra.** (Formerly numbered 115.) Lecture, three hours; discussion, one hour. Prerequisite: course 33A. Abstract vector spaces; linear transformations and matrices; determinants; inner product spaces; low dimension eigenvector theory.

**115B. Linear Algebra.** Lecture, three hours; discussion, one hour. Prerequisite: course 115A. Linear transformations, conjugate spaces, duality; the 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 101A or 110A. Integers, congruences; fields, applications of finite fields; polynomials; permutations, introduction to groups.

**118. Combinatorial Algorithms.** Lecture, three hours; discussion, one hour. Prerequisites: courses 32B, 33B. Applied aspects of combinatorial mathematics, including counting and enumeration; searching and sorting techniques; recurrence relations; graph algorithms; computational complexity.

## Geometry and Topology

**120A-120B. Differential Geometry.** Lecture, three hours; discussion, one hour. Prerequisites: courses 32B, 33B. 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, the metrization problem.

**122. Projective Geometry.** Lecture, three hours; discussion, one hour. Prerequisite: course 115A. Projective spaces, especially lines and planes; homogeneous coordinates; the principles of duality; projectivities, the fundamental theorem, and the theorems of Desargues, Pappus, Steiner, and Pascal.

## Analysis

**131A-131B. Analysis.** Lecture, three hours; discussion, one hour. **131A.** Prerequisites: courses 32B, 33B. Real numbers, point set topology in  $\mathbb{R}^n$  and in metric spaces, limits, continuity, derivatives, infinite sequences and series. **131B.** Prerequisites: courses 115A, 131A. Functions of bounded variation, Riemann-Stieltjes integral, sequences and series of functions, multivariable differential calculus, implicit and inverse function theorems, extremum problems.

**131AH-131BH. Analysis (Honors Sequence).** Prerequisite: consent of instructor. An honors sequence parallel to courses 131A-131B. Courses 131AH, 131BH and 132H form a full honors sequence in analysis.

**132. Introduction to Complex Analysis.** Lecture, three hours; discussion, one hour. Prerequisites: courses 32B, 33B. Complex numbers, functions, differentiability, series, extensions of elementary functions, integrals, calculus of residues, conformal maps and mapping functions with applications.

**132H. Introduction to Complex Analysis (Honors).** Prerequisites: course 131BH and consent of instructor. An 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. An 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.** (Formerly numbered 135C.) Lecture, three hours; discussion, one hour. Prerequisites: courses 33A, 33B. Linear partial differential equations, particularly of the second order: the wave equation, the heat equation, and Laplace's 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 Computer Science 10C or 10F. Not normally open for credit to students with credit for courses 141A, 141B, System Science 124A. The courses emphasize both theory, with error analysis, and applications. Analysis of numerical methods for the 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 Computer Science 10C or 10F. Not open for credit to students with credit for courses 140A, 140B, System Science 124A. Introduction to scientific computing. The courses emphasize programming, algorithms, and applications. Case studies. Numerical methods and computer implementation for the following areas: **141A.** Nonlinear equations, systems of linear equations, optimization, interpolation, differentiation, and integration. **141B.** Differential equations, least-squares approximation, Monte Carlo methods, and linear programming.

**142. Mathematical Modeling.** Lecture, three hours; discussion, one hour. Prerequisites: courses 32B, 33B, or consent of instructor. An introduction to the fundamental principles and the spirit of applied mathematics. Emphasis on the manner in which mathematical models are constructed for physical problems. Illustrations are drawn from many fields of endeavor (e.g., physical science, 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's 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 System Science 129A. Principles of linear programming, the duality theorem, the 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.** (Formerly numbered 145A.) 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.** (Formerly numbered 145B.) 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 144 or consent of instructor. Principles and techniques of game theory. Games in extensive form. Matrix games. The minimax theorem and calculation of optimal strategies. Stochastic games. Cooperative and noncooperative solutions of bimatrix games. Coalitional games and applications. Additional topics such as combinatorial games, repeated games, the Lemke-Howson algorithm, assignment games and the marriage problem, economic markets, cost allocation, measurement of voting power.

## Probability and Statistics

The 150 and 152 sequences are parallel courses and transferring between them is not permitted.

**150A-150B-150C. Probability and Statistics.** Lecture, three hours; discussion, one hour. Prerequisites: courses 32B, 33B. **150A** and the first half of **150B** constitute an introduction to probability theory. The second half of **150B** and **150C** constitute an introduction to statistics. The courses emphasize both theory and applications.

**151. Stochastic Processes.** Prerequisites: courses 150A-150B or 152A, and consent of instructor. An introduction to the theory and application of stochastic models, emphasizing Markov chains and pure jump processes; illustrations from queueing systems, point processes, birth and death processes, renewal theory; Poisson processes, Brownian motion.

**152A-152B. Applied Mathematical Statistics.** Prerequisite: course 32B or consent of instructor. A basic introductory course in the theory and application of statistical methods. The sequence condenses courses 150A-150B-150C into two quarters mainly by devoting less time to the underlying theory.

**M153. Introduction to Computational Statistics.** (Same as Biomathematics M153.) Prerequisite: course 150C or 152B or equivalent. Statistical analysis of data by means of package programs. Regression, analysis of variance, discriminant analysis, and analysis of categorical data. Emphasis on understanding the connection between statistical theory, numerical results, and analysis of real data.

Mr. Jennrich (Sp)

**169. Mathematics of Computer Graphics.** Lecture, three hours; discussion, one hour. Prerequisites: course 115A, and Computer Science 10C or equivalent knowledge of programming in either the 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.

**169HS. Honors Seminar in Mathematics of Computer Graphics (2 units).** Prerequisites: course 169 and consent of instructor. Limited enrollment (admission to be based on performance in course 169 and on written project proposals, which may be discussed with the instructor in advance of submission). Each student prepares an extensive project involving mathematics and computer graphics and presents lectures on it to the class. Projects are expected to be at an honors level, although participants need not be in an honors program.

## Special Studies

**190. Honors Mathematics Seminar.** Prerequisites: honors program standing and consent of instructor. A participating seminar on advanced topics in mathematics.

**191. Upper Division Seminars (2 to 4 units).** Prerequisites: courses 32A, 32B, 33A, 33B, and consent of instructor. Limited to 15 students. Each quarter the department offers a limited number of seminars in various branches of mathematics. The method of teaching involves 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 the discretion of the Chair and subject to the 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 the ten upper division courses required for the degree.

## Graduate Courses

### Teacher Preparation

**201A-201B-201C. Topics in Algebra and Analysis.** Prerequisite: B.A. degree in Mathematics or equivalent. Designed for students in the mathematics-education program. Important ideas of algebra, geometry, and calculus leading effectively from elementary to modern mathematics. Approaches to the number system, point sets, geometric interpretations of algebra and analysis, integration, differentiation, series and analytic functions. May not be applied toward the M.A. degree requirements.

**202A-202B. Mathematical Models and Applications.** Prerequisite: B.A. degree in Mathematics or equivalent. Designed for students in the mathematics-education program. A development of mathematical theories describing various empirical situations. Basic characterizing postulates are discussed, and a logical structure of theorems is developed. Modern topics such as operations research, linear programming, game theory, learning models, models in social and life sciences. May not be applied toward the 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's 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 the theorems of Sylow and Jordan-Hölder-Schreier; rings and ideals, factorization theory in integral domains, modules over principle ideal rings, Galois theory of fields, multilinear algebra, structure of algebras.

**211. Structure of Rings.** Prerequisite: course 210A or consent of instructor. The 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. Algebraic Geometry.** Prerequisite: course 210A or consent of instructor. Preliminaries from the theory of commutative rings and algebras. Theory of algebraic varieties. Topics include plane curves, resolution of singularities, invariant theory, intersection theory, divisors and linear systems.

**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, the principal ideal theorem, Dedekind rings, modules, projective modules, the Serre conjecture, regular local rings.

## Logic and Foundations

**220A-220B-220C. Mathematical Logic and Set Theory.** Prerequisites: courses 112A-112B-112C or equivalent. Model theory: compactness theorem; Lowenheim-Skolem theorems; definability; ultraproducts; preservation theorems; interpolation theorems. Recursion function theory: Church's thesis; 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

**226A-226B-226C. Differential Geometry.** Prerequisite: course 231A 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.

**228. Convex Sets.** Prerequisite: course 121 or 245A or consent of instructor. Basic concepts for convex sets in topological linear spaces; separation theorems and support functions; local convexity; convex functions; Helly type theorems; duality.

**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. Semi-simple Lie algebras. Classification of simple Lie algebras. Representations. Compact groups. Weyl's character formula.

## Topology

**230. General Topology.** Prerequisites: courses 131A-131B or consent of instructor. Students with credit for course 121 will not receive M.A. degree credit for this course. Topological spaces and maps, products, quotient spaces, connectedness and compactness, separation properties, local properties, completeness. Homotopy and the fundamental group.

**231A. Manifold Theory.** Prerequisites: courses 121 and 131A-131B, or consent of instructor. Manifolds, tangent and cotangent spaces, vector fields and integral curves, Lie brackets, differential forms and exterior derivative, Stokes' theorem on manifolds.

**231B. Introduction to Homology Theory.** Prerequisite: course 231A or consent of instructor. Elementary concepts of homotopy theory. Singular chains and the boundary operator, definition of homology, Mayer-Vietoris sequence, calculation of homology of standard spaces.

**231C. Further Topics in Geometry and Algebraic Topology.** Prerequisites: courses 231A and 231B, or consent of instructor. Topics may include cohomology and duality theorems, de Rahm's theorem, cup products, and transversality intersection theory of submanifolds. Additional topics as time permits.

**232A-232B-232C. Algebraic Topology.** Prerequisite: course 121 or 230 or consent of instructor. Fundamental group; homology theory, singular theory, cellular theory, computation of homology groups; cohomology theory, cup and cap products, duality; homotopy theory, fiberspaces, Hurewicz theorem, obstruction theory.

**236. Advanced Topics in Geometric Topology.** Prerequisites: courses 231A and 231B, or consent of instructor. Handlebody theory, transversality; PL topology; surgery. Topics vary from year to year.

**237. Advanced Topics in Algebraic Topology.** Prerequisites: courses 232A-232B-232C or consent of instructor. K-theory; fixed point theory; extraordinary cohomology theories. Topics vary from year to year.

## Analysis and Differential Equations

**240. Methods of Set Theory.** Lecture, three hours. Prerequisites: courses 110A-110B, 121 or equivalent, and 131A-131B. Naive, axiomatic set theory, the axiom of choice and its equivalents, well-orderings, transfinite induction, ordinal and cardinal arithmetic. Applications to algebra: Hamel bases, the Stone representation theorem. Applications to analysis and topology: the Cantor-Bendixson theorem, counterexamples in measure theory, Borel and analytic sets, Choquet's theorem.

**245A-245B-245C. Real Analysis.** Prerequisites: courses 121 and 131A-131B or equivalent (course 230 may be taken concurrently). 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's theorem. Cauchy's integral formula and the residue calculus. Power series. Normal families. Harmonic functions. Linear fractional transformations. Conformal mappings. Analytic continuation. Examples of Riemann surfaces. Infinite products. Partial fractions. The classical transcendental functions. Elliptic functions.

**247A-247B. Classical Fourier Analysis.** Lecture, three hours. Prerequisites: courses 245A-245B and 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 nth 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. The 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. An in-depth introduction to topics of current interest in partial differential equations or their applications.

**252A-252B-252C. Advanced Topics in Complex Analysis.** 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, quasiconformal 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. Trigonometrical Series.** Prerequisite or corequisite: course 245A or 246A or consent of instructor. Selected topics in Fourier series, power series, orthogonal polynomials, almost periodic functions, and completeness of sets of functions.

## 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, semigroups 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. The 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 the theories of  $C^*$  and von Neumann algebras. Applications.

## Applied Mathematics

**260. Introduction to Applied Mathematics.** Prerequisite: course 142 or consent of instructor. The construction, analysis, and interpretation of mathematical models of problems which arise outside of mathematics.

**M263. Hydrodynamic Instabilities and Turbulence.** (Same as Earth and Space Sciences M211.) An introduction to the theories of hydrodynamic instability and the nonstatistical description of turbulence; stability bounds by the energy method; linear theory of instability; finite amplitude theories of post-instability flows; bounds on properties of turbulent flows by variational techniques.

Mr. Busse (alternate years)

**264. Applied Complex Analysis.** Prerequisite: course 246A or consent of instructor. Topics include contour integration conformal mapping, differential equations in the 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 the 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 145A-145B. 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's equation in bounded domains, first-order equations, wave equations, Cauchy problem, energy conservation, heat equation, fundamental solution, equations of fluid mechanics and magnetohydrodynamics.

**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.

**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, 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-270B. Mathematical Aspects of Scientific Computing.** Prerequisites: courses 115A, 140A, or consent of instructor. Varies from year to year between computational linear algebra and computational fluid dynamics. Computational linear algebra: direct, fast, and iterative algorithms, overdetermined systems; singular value decomposition, regularization, sparse systems, the algebraic eigenvalue problem. Computational fluid dynamics: basic equations, finite difference, finite element, pseudo-spectral, and vortex methods; stability, accuracy, shock capturing, and boundary approximations. May be repeated for credit by petition.

**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 and prior knowledge of mechanics. Newtonian and Lagrangian equations. Hamilton's principle. Principle of least action. Holonomic and nonholonomic systems. Hamilton's canonical equations, contact transformations, applications.

**271C. Introduction to Relativity.** Prerequisites: course 271A and prior knowledge of mechanics. Restricted theory of relativity. Extensions to general theory. The relativistic theory of gravitation.

**272. Advanced Topics in Continuum Mechanics.** Prerequisites: courses 142 and 251A, or equivalent. Mathematical aspects of solid and/or fluid mechanics. Instability, wave propagation, nonlinear and stochastic phenomena.

**273. Wave Mechanics.** Prerequisite: consent of instructor. General concepts of mechanical systems (states, space-time, "logics," etc.). Classical and quantum examples. Correspondence principle. Spinors.

**M274A. Asymptotic and Perturbation Methods I.** (Same as Civil Engineering M292A.) Prerequisites: course 132 and Chemical Engineering M192A, or equivalent. The fundamental mathematics of asymptotic analysis, asymptotic expansions of Fourier integrals, method of stationary phase. Watson's lemma, method of steepest descent, uniform asymptotic expansions, elementary perturbation problems.

**M274B. Asymptotic and Perturbation Methods II.** (Same as Civil Engineering M292B.) Prerequisites: course 132 and Chemical Engineering M192A, or equivalent. The fundamental mathematics of asymptotic analysis, limit process expansions, regular and singular perturbation problems, matching of asymptotic expansions, multiple-scale methods, application to partial differential equations, near and far fields.

## 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.** Prerequisites: courses 275A-275B. Selected topics such as Brownian motion and potential theory. Markov processes, infinite particle systems, Gaussian processes. Content varies from year to year. May be repeated for credit.

**276A-276B. Mathematical Statistics.** Prerequisites: courses 150A-150B-150C or 152A-152B and 131A-131B. **276A.** Bayes, admissible, and minimax decision rules; sufficiency and completeness; uniformly most powerful tests. **276B.** Fisher information; Cramer-Rao inequality; asymptotic properties of tests and estimators; maximum likelihood estimators; likelihood ratio and chi-square tests of hypotheses.

**276C. Statistical Decision Theory.** Prerequisite: course 276A. Invariant estimates and tests; best unbiased and locally best tests; multiple decision problems; application to the general linear model; other topics.

**277. Sequential Analysis.** Prerequisite: course 276A. Bayes sequential decision rules, stopping rule problems, optimality of the sequential probability ratio test, Wald's fundamental identity.

**278. Nonparametric and Robust Statistics.** Prerequisite: course 276B. Nonparametric and robust procedures are developed for hypothesis testing, estimation in one- and two-sample problems, linear and nonlinear regression, multiple classification, density estimation.

**M279A-M279B-M279C. Linear Statistical Models.** (Same as Public Health M205A-M205B-M205C.) Lecture, three hours. Prerequisites: course 150C or 152B, and Public Health 100C, or equivalent. Topics include linear algebra applied to linear statistical models, distribution of quadratic forms, the Gauss-Markov theorem, fixed and random component models, balanced and unbalanced designs.

**M280. Computational Statistics.** (Same as Biostatistics M280 and Public Health M207J.) Lecture, three hours. Prerequisites: courses 115A and 150C, or equivalent. Introduction to theory and design of statistical programs: pivoting and other technologies used in stepwise regression, nonlinear regression algorithms, algorithms for balanced and unbalanced analysis of variance, including the mixed model, iterative rescaling and other methods for log-linear models.

## Special Studies

**285A-285L. Seminars.** Prerequisite: consent of instructor. No more than two 285 courses may be applied toward the M.A. degree requirements except by prior consent of the Vice Chair for Graduate Studies. Topics in various branches of mathematics and their applications by means of lecturers and informal conferences with members of the staff:

**285A.** Seminar in the History and Development of Mathematics.

**285B.** Seminar in Number Theory.

**285C.** Seminar in Algebra.

**285D.** Seminar in Logic.

**285E.** Seminar in Geometry.

**285F.** Seminar in Topology.

**285G.** Seminar in Analysis.

**285H.** Seminar in Differential Equations.

**285I.** Seminar in Functional Analysis.

**285J.** Seminar in Applied Mathematics.

**285K.** Seminar in Probability.

**285L.** Seminar in Statistics.

**286A-286M. Participating Seminars (No credit).** Prerequisite: consent of instructor. Seminars and discussion by staff and students. No course credit is given, but the courses may be used to satisfy the participating seminar requirement for the Ph.D. S/U grading:

**286A.** Participating Seminar in the History and Development of Mathematics.

**286B.** Participating Seminar in Number Theory.

**286C.** Participating Seminar in Algebra.

**286D.** Participating Seminar in Logic.

**286E.** Participating Seminar in Geometry.

**286F.** Participating Seminar in Topology.

**286G.** Participating Seminar in Analysis.

**286H.** Participating Seminar in Differential Equations.

**286I.** Participating Seminar in Functional Analysis.

**286J.** Participating Seminar in Applied Mathematics.

**286K.** Participating Seminar in Probability.

**286L.** Participating Seminar in Statistics.

**286M.** Participating Seminar in Mathematics.

**290. Seminar in Current Literature.** For Ph.D. candidates. Readings and presentations of papers in mathematical literature under the supervision of a staff member.

**370. The Teaching of Mathematics.** Lecture, three hours. Prerequisites: course 3B or 31B, and senior standing. A critical inquiry into present-day tendencies in the teaching of mathematics.

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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 4 units).** Supervised individual reading and study on a project approved by a faculty member, which may be preparation for the M.A. essay. May be repeated for credit, but only two 596 courses may be applied toward the M.A. degree unless departmental consent is obtained.

**599. Research in Mathematics (2 to 8 units).** Study and research for Ph.D. dissertation. May be repeated for credit.

## Mathematics/ Computer Science (Interdepartmental)

6375 Math Sciences, 206-1286

### Bachelor of Science Degree

The mathematics/computer science major is a cooperative program offered jointly by the Department of Computer Science in the School of Engineering and Applied Science, and the Department of Mathematics. The program, administered by the Mathematics Department, leads to the Bachelor of Science degree.

The conditions given below apply to students entering UCLA in the 1984-85 academic year. New standards will be in effect for students entering in 1985-86. Information about these new standards will be available from the Mathematics Department after September 1, 1984.

### Pre-Mathematics/Computer Science Major

Students are not admitted directly into the major. You must enroll as a premajor and complete certain requirements before being admitted into the major.

Students entering UCLA directly from high school who declare themselves to be pre-mathematics/computer science majors at the time of their application for admission are automatically enrolled as such.

If you are a UCLA student or transfer student, your admission to the premajor is governed by your performance in those courses you have taken which are equivalent to any of the "Preparation for the Major" courses (Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61, Program in Computing 10, 20, 30, Physics 8A, 8C). In general, you must have a minimum grade of C in each of the equivalent courses and, if you have

45 or more quarter units of credit, an overall GPA of at least a B for the set of equivalent courses. In addition, if you have 45 to 89 units of credit, you must have completed 12 quarter units of calculus and one programming course (preferably in the Pascal language). If you have 90 to 119 units, you must have completed 18 units of calculus, one programming course, and one calculus-based physics course. If you have 120 or more units, admission is decided on an individual basis.

### Preparation for the Major

Premajors who entered UCLA directly from high school will be admitted to the major provided they completed, during the freshman year, Mathematics 31A, 31B, 32A, 61, Program in Computing 10, 20, and Physics 8A with a minimum grade of C in each course and with an overall GPA of 3.3 for the set of these courses.

Advanced students who have been admitted to the premajor will be allowed into the major after they complete the six courses mentioned above, complete at least three other "Preparation for the Major" or major courses at UCLA, and earn a minimum grade of C in each and an overall GPA of 3.3 in all "Preparation for the Major" and major courses taken at UCLA.

Mathematics 32B, 33A, 33B, 61, Program in Computing 30, and Physics 8C are also required as preparation and are to be taken during the sophomore year.

### The Major

**Required:** Fourteen courses, seven in mathematics and seven in computer science, distributed as follows: (1) Mathematics 115A, either 110A or 117, either 150B or 152A, and four courses from 110A through 199 (suggested: 113, 114A, 118, 140A, 140B, 140C, 141A, 141B, 142, 144, 150A, or 152B, M153); (2) Computer Science 131, 141, 151A, 151B, 152A, 152B, 181, and one additional course from Mechanical, Aerospace, and Nuclear Engineering 194A, 194B, System Science 121A, 121C, 124A, 127B, or Computer Science 111 through 199 (courses 152A and 152B are laboratory courses; each is to be taken concurrently with its mate). Credit may not be applied toward the degree for more than one of Mathematics 140A, 141A, System Science 124A.

### Minimum Standards

A minimum grade of C is required in each "Preparation for the Major" course; a minimum grade of C- is required in all major courses. In addition, you must maintain a GPA of 2.0 or better in upper division mathematics courses and a GPA of 2.0 or better in upper division computer science and system science courses in the major.

If you do not earn the specified minimum grade in a particular course, you must repeat that course. If you fail to earn the minimum grade

for the repeated course, you may not remain in the premajor or major.

### Duplications

The rules against duplication of courses that apply to mathematics majors also apply to mathematics/computer science majors.

### Honors Program

Majors who wish to graduate with honors should apply for admission to the honors program. You may enter the program after completing two upper division mathematics courses and eight upper division units in computer science or system science courses in the major with an overall GPA of 3.6. The program consists of completing a suitable special project or participating seminar, earning a 3.6 GPA in upper division mathematics courses, and a 3.6 GPA in upper division computer science and system science courses in the major.

If you complete the program, you will be awarded honors on graduation; if you demonstrate exceptional achievement, you will be awarded highest honors.

## Mathematics/ System Science (Interdepartmental)

6375 Math Sciences, 206-1286

### Bachelor of Science Degree

The mathematics/system science major is a cooperative program offered jointly by the Department of System Science in the School of Engineering and Applied Science, and the Department of Mathematics. The program, administered by the Mathematics Department, leads to the Bachelor of Science degree.

Enrollment in the major is limited. Applications for admission will be accepted in the Undergraduate Mathematics Office during the fourth, fifth, and sixth weeks of each quarter and during the month of July. At the close of each enrollment period applicants will be ranked by GPA in the "Preparation for the Major" and major courses. Admission to the major, depending on the number of openings available, will be offered in accordance with these rankings.

To be admitted, you must have at least 60 but no more than 135 quarter units of credit. You must also have completed at least seven of the ten courses required as "Preparation for the Major," with a minimum grade of C in each course and an overall GPA of 2.5 for all such courses. In calculating the GPA for ranking

purposes, only grades earned in the "Preparation for the Major" or major courses taken at UCLA will be counted. Transfer students must have completed at least four full courses at UCLA that can be used for ranking purposes.

### Preparation for the Major

**Required:** Mathematics 31A, 31AL, 31B, 31BL, 32A, 32B, 33A, 33B, Physics 8A, 8C, and 8B or 8D.

### The Major

**Required:** Fourteen courses, seven in mathematics and seven in engineering, distributed as follows: (1) Mathematics 115A, 131A, two courses from 115B, 131B, 135B, 140B or 141B, 150B or 151B (prerequisites to these courses must also be satisfied), and three courses from 110A through 199; (2) System Science 121C and six courses from Electrical Engineering 100, 110A, 110B, System Science 120A, 120B, 122A, 128A, 128L, 129A. One of the fourteen courses must be selected from Mathematics 150A, 152A, or System Science 120A. The seven mathematics courses and the seven engineering courses must be passed with a minimum overall GPA of 2.0.

### Specialization in Computing

Majors in mathematics/system science may select a specialization in computing by (1) satisfying all the requirements for the bachelor's degree, (2) completing Program in Computing 10, 20, 30, 60, and Mathematics 61 with a minimum grade of C in each course, (3) completing at least two courses from Mathematics 141A, 141B, 169, 169HS. You will graduate with a bachelor's degree in your major and a specialization in computing.

### Duplications

The rules against duplication of courses that apply to mathematics majors also apply to mathematics/systems science majors.

## Microbiology

5304 Life Sciences, 825-3578

### Professors

R. John Collier, Ph.D.  
 Frederick A. Eiserling, Ph.D., *Chair*  
 C. Fred Fox, Ph.D.  
 June Lascelles, Ph.D.  
 Rafael J. Martinez, Ph.D.  
 Donald P. Nierlich, Ph.D.  
 M. J. Pickett, Ph.D.  
 Sydney C. Rittenberg, Ph.D.  
 William R. Romig, Ph.D.  
 Eli E. Sercarz, Ph.D.  
 Gary L. Wilcox, Ph.D.  
 Meridian R. Ball, Sc.D., *Emeritus*  
 Anthony J. Salle, Ph.D., *Emeritus*

### Associate Professors

Arnold J. Berk, M.D.  
 Mary C. Territo, M.D. (*Medicine*)  
 Bernadine J. Wisneski, Ph.D.  
 Owen N. Witte, M.D.

### Assistant Professors

Aldons J. Lasis, Ph.D., *in Residence (Medicine)*  
 Robert P. Gunsalus, Ph.D.

### Adjunct Professor

John H. Silliker, Ph.D.

### Adjunct Assistant Professor

Laurel G. Heffernan, Ph.D.

## Scope and Objectives

Microbiology at UCLA is a diverse science that includes bacteriology, virology, and the study of single mammalian 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 prepare for careers in medicine or dentistry, medical technology, industrial microbiology (including pharmaceuticals or genetic engineering), and agricultural or environmental sciences, among others. The courses presented by the department lead to a Bachelor of Arts degree and depend heavily on preparation in chemistry, biology, 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 cell biology, immunology, cell and virus structure and morphogenesis, animal virology, general bacteriology and physiology, host-parasite relationships/medical microbiology and 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 the graduate microbiologist.

Note: Several upper division and graduate courses in this department are multiple-listed with those in the Microbiology and Immunology program offered by the UCLA School of Medicine. If you are interested in a fundamentally disease-oriented approach to microbiology, see the Microbiology and Immunology Department description in Chapter 15.

## Bachelor of Arts Degree

### Preparation for the Major

**Required:** Microbiology 7 (or Biology 7); Biology 5, 8; Chemistry 11A, 11B/11BL, 11C/11CL, 21, 23, 25; Mathematics 3A, 3B, 3C (or 31A, 31B, 32A); Physics 6A, 6B, 6C (or 8A/8AL, 8B/8BL, 8C/8CL, 8D/8DL).

## Pre-Microbiology Major

Students (new, transfer, or change of major) who wish to major in microbiology will first register as pre-microbiology students. After a minimum of two quarters in this status, you may petition to change to the microbiology major after completing ten of the 15 courses required in preparation for the major and Microbiology 101 with a grade of C or better. Whenever possible, Microbiology 7 should be taken in place of Biology 7. If you enter with 80 or more units of credit, in order to specify pre-microbiology as your major, you must have completed one year of general chemistry; Biology 5, 7, or equivalent; one of the following: organic chemistry with laboratory (two courses), physics (one year), calculus (one year).

### The Major

**Required:** Microbiology 101, 102, C103A or C103B or 110, 119, M185; Chemistry 152; four additional upper division courses from the departmental list or from related departments selected with approval of the faculty adviser. In addition to requirements for graduation prescribed by the college, you are required to maintain a minimum grade-point average of 2.0 (C) in the microbiology major. In addition, you must obtain a C or better in Microbiology 101 and 102 before continuing with further departmental upper division courses. If you repeat one of these courses, you must obtain a grade of B or better to remain in the major.

## Master of Arts Degree

### Admission

Requirements for admission are the same as for the Ph.D. degree. Information is available from the graduate adviser's office.

The department accepts relatively few students whose objective is a master's degree; applicants should contact a potential faculty sponsor at the time of application.

## Ph.D. Degree

### Admission

For admission, you must have completed an undergraduate major in science with superior scholastic achievement. You should have preparation in calculus, physics, biology, genetics, organic and biological chemistry, and microbiology. Physical chemistry is strongly recommended. You may be admitted with background deficiencies to be remedied prior to or concurrent with graduate studies. Submit scores of the GRE Aptitude Test directly to the department. Evidence (via letters of recommendation, interviews, or direct knowledge) of your research potential and motivation is also required. Completion of a master's degree is not normally required.



## Course Requirements

### Formal Lecture/Laboratory Courses

**Biochemistry:** Chemistry M253 (six units; offered only in the Fall Quarter; to be completed during the first year) and Microbiology 225 or M239 (lecture and laboratory, eight units each; offered in the Winter and Spring Quarters respectively; to be completed during the first year) are required.

**Genetics and Regulation:** One 200-level, four-unit course to be selected from the current course listings maintained in the departmental graduate office is required.

A total of eight additional units of 200-level coursework to be selected from at least two of the three subject areas below is required. Acceptable courses include the following:

(1) *General Microbiology and Cell Biology:* Microbiology C204C, C211, M230A, Biology 229, Microbiology and Immunology M293.

(2) *Host-Parasite Interactions and Virology:* Microbiology C203A, C203B, C204E, Microbiology and Immunology 201, 208, 210, Pathology 242A, 242B, 242C.

(3) *Immunology:* Microbiology M185, M258A, M258B, Microbiology and Immunology M212, 261, 264.

Other courses may be accepted with written consent of the departmental graduate adviser and your advisory committee.

You are expected to complete two courses in physical chemistry (Chemistry 110A and 156). This requirement can be waived on the basis of work done before entering UCLA. If you must take both courses as a graduate student, you may apply one of them (four units) toward satisfaction of the seminar course requirement.

### Student-Participation Seminar Courses

Each quarter, seminar courses in which students read and report on current scientific research literature are organized. You must enroll in five such courses (ten units), including two offerings in the C204 series, during your first two years of residence.

### Laboratories

During the first 15 months of residence, you will rotate for one quarter each through three laboratories within the department (outside laboratories are permissible with the consent of the advisory committee). You will normally enroll in Microbiology 596 for four units of credit for each laboratory.

### First-Year Proposal

By June 30 of the first year of study you must submit an original research proposal of approximately five pages. The topic may be based on a subject presented in a departmental professional seminar or on material from one of the seminar courses. Suggestions and evaluations will be returned to you and used by faculty to evaluate continuation into the second year.

## Teaching Experience

The department considers teaching experience to be an integral part of the graduate program. All Ph.D. candidates are required to serve as teaching assistants or in some other formal teaching capacity for three quarters. Prior experience at another institution is acceptable when approved by the departmental graduate adviser.

## Qualifying Examinations

The written examination must be taken within 21 months of entry into graduate school and must be passed, if reexamination is required, no later than 24 months from the date of entry. (These periods may be extended to 26 and 29 months respectively with the written consent of the departmental graduate adviser and your mentor.)

The examination is administered by the doctoral committee which will normally serve as the thesis committee as well. As a major part of the examination, you will prepare and defend a written research proposal. Before presentation to the doctoral committee, you are encouraged to present the proposal before a student seminar group.

The University Oral Qualifying Examination will cover both your proposal and general scientific background. It is not restricted to the topics of the proposal. The committee may arrange alternate ways to assess your preparation and qualifications.

## Final Oral Examination

A dissertation on a subject of your choice selected in consultation with the major professor is required. The final oral examination, administered by the doctoral committee, is a defense of the completed dissertation, presented as a professional seminar and open in part to the public.

## Lower Division Courses

**6. Introduction to Microbiology.** Lecture, three hours. Not open for credit to students with credit for courses 7, 10, 101, Biology 5, 6, 7, 8, or equivalent courses taken elsewhere. Designed for the nontechnical student; an introduction to the biology of microorganisms (bacteria, viruses, protozoa, algae, fungi), their significance as model systems for understanding fundamental cellular processes, and their role in human affairs. (F,W,Sp)

**7. The New Cell Biology.** Lecture, three hours; laboratory, four hours. Prerequisites: Biology 5, Chemistry 11A. Designed for undergraduate students intending to major in microbiology and others as interested. Lecture and laboratory sessions to give students basic elements of scientific observation using prokaryotic and eukaryotic cell structure and cellular interactions. Intensive training in use of light microscope techniques. Actual on-hand training in microscopic techniques using video microscope, slides, and demonstrations. Extensive exposure to landmark observations and experiments in development of modern cell biology and structure. Several outstanding invited experts in the scientific community also present lectures in their special areas.

Mr. Fox, Mr. Witte (W)

**10. General Microbiology.** Lecture, three hours; laboratory, six hours. Prerequisites: course 7 (or Biology 7), Biology 5, Chemistry 11A, 15. Designed for health sciences students. Not open for credit to students with credit for Microbiology 101; does not substitute for course 101 in the major. An introduction to the biology of bacteria and their role in diseases of man.

Ms. Wisnieski (Sp)

**51. The Development of Bacteriology (2 units).** Prerequisites: Biology 5, Chemistry 11A, 11B, 11C. Discussion of the early investigations important in the development of bacteriology and the now independent sciences of virology and immunology. P/NP grading.

Mr. Rittenberg (W)

## Upper Division Courses

**101. Fundamentals of Bacteriology.** Lecture, three hours; laboratory/discussion, six hours. Prerequisites: course 7 (or Biology 7), Biology 5, Chemistry 21, 23, 25. The historical foundations of the science; the structure, physiology, ecology, and applications of bacteria.

Mr. Gunsalus (Sp), Ms. Lascelles, Mr. Romig (F)

**102. Introductory Virology.** Lecture, three hours; laboratory, four hours. Prerequisite: course 101. Biological properties of bacterial and animal viruses; replication; methods of detection; interactions with host cells and multicellular hosts.

Mr. Berk, Mr. Romig (W)

**C103A. Biochemistry and Biology of Bacterial Infection.** (Formerly numbered 103.) Lecture, three hours. Prerequisites: course 101, Chemistry 152. Discussions focus on the biochemical properties of bacteria which afford the potential for pathogenicity. Discussions on the epidemiology and transmission of disease, as well as chemotherapy and drug resistance, are offered. Concurrently scheduled with course C203A.

Mr. Martinez (W)

**C103B. Biochemistry of Host Defense Mechanisms.** Lecture, three hours. Prerequisites: courses 101, M185, Chemistry 152. The biochemical basis of host defense mechanisms is analyzed in detail. Discussions focus on the role of immunoglobulins in combating microbial invasion; the biology and biochemistry of phagocytic cells and constitutive mechanisms of host defense. Concurrently scheduled with course C203B.

Mr. Martinez (Sp)

**C104A. Molecular Biology of Bacterial Growth (2 units).** Lecture, three hours. Prerequisites: course 101, Biology 8, Chemistry 25, or equivalent, or consent of instructor. Introduction to bacterial physiology, with lectures stressing its experimental foundation. Topics include chromosome replication, gene expression, control of growth rate and cell division, role of cyclic AMP and other regulatory factors, cloning and genetic engineering. May be concurrently scheduled with course C204A.

Mr. Nierlich (Sp, first five weeks)

**C104B. Biochemical Genetics of Eukaryotic Cells (2 units).** Lecture, three hours. Prerequisites: prior background in microbiology, biochemistry, and genetics and consent of instructor. Important concepts and experimental approaches in biochemical genetics are illustrated with selected research papers and reviews. Topics include systematic genetic analysis of mammalian cells, somatic cell genetics, developmental genetics, genetic analysis of cancer and human genetic disorders, genetic analysis of hormonal regulation. May be concurrently scheduled with course C204B.

Mr. Lusi (F, five weeks)

**C104C. The Mammalian Cell as a Microorganism (2 units).** Lecture, three hours. Prerequisites: Chemistry 152 and consent of instructor. The cultured mammalian cell as an experimental system for the 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 the study of normal growth and development, disease mechanisms and cancer. May be concurrently scheduled with course C204C.

Mr. Fox (F, five weeks)

**C104E. RNA Tumor Viruses (2 units).** Lecture, three hours. Prerequisites: Chemistry 152 and consent of instructor. The course concentrates on interactions of RNA tumor viruses with differentiating tissues, such as the immune system and erythroid development. May be concurrently scheduled with course C204E.

Mr. Witte (Sp, five weeks)

**108. Hematology (2 units).** Prerequisites: senior standing and consent of instructor. Diagnostic procedures used for the study of normal and pathological blood cells.

Ms. Territo (Sp)

**110. The Microbiology of Infection.** Lecture, three hours; laboratory, six hours. Prerequisites: courses 101, 102, Chemistry 152, or consent of instructor. The salient characteristics of bacteria, rickettsiae, and viruses, both pathogenic and adventitious, associated with diseases of man.

Mr. Pickett (F)

**110C. The Laboratory Diagnosis of Infection.** Lecture, two hours; laboratory, nine hours. Prerequisite: course 110. Techniques in the laboratory examination of clinical material.

Mr. Pickett (W)

**C111. Biology of the Prokaryotic Cell.** (Formerly numbered 111.) Lecture, three hours; discussion, one hour. Prerequisites: course 101 and Chemistry 152, or consent of instructor. A review of current knowledge of the 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.

Mr. Eiserling, Ms. Wisnieski (W)

**113. Bacterial Metabolism.** Lecture, three hours; discussion, one hour. Prerequisite: Chemistry 152 or consent of instructor. The major patterns of energy generation and biosynthesis and their regulation. Discussion sections on selected topics are centered around readings from the current literature.

Ms. Lascelles (W)

**119. Microbial Genetics and Genetic Engineering.** Lecture, three hours; discussion, one hour. Prerequisites: course 102, Biology 8, or consent of instructor. Genetics of bacteria and bacteriophages, with emphasis on recombinant DNA technology and use of microbial systems in genetic engineering.

Mr. Wilcox (Sp)

**151. Principles of Food Microbiology.** Lecture, three hours. Prerequisite: course 101 (or equivalent by consent of instructor). Fundamental principles of food microbiology. Emphasis on basic microbiological principles as applied to food products and processing. The approach is science oriented rather than technology oriented. Readings in past and current research literature in food microbiology.

Mr. Silliker (Sp)

**M185. Immunology.** (Same as Biology M185 and Microbiology and Immunology M185.) Lecture, three hours; discussion, one hour. Prerequisites: Biology 8, Chemistry 23, 25. Recommended corequisite: Chemistry 152 or 156. Introduction to experimental immunology and immunochemistry; cellular and molecular aspects of humoral and cell immune reactions.

Mr. Clark, Mr. Sercarz (F)

**M186. Experimental Design in Immunology.** (Same as Biology M186 and Microbiology and Immunology M186.) Laboratory, twelve hours. Prerequisites: course M185, consent of instructor. Corequisite: course M187. The course focuses on a limited number of situations designed to train the student in organizing and evaluating immunological laboratory experiments.

Mr. Clark, Mr. Sercarz (W)

**M187. Immunology Seminar (2 units).** (Same as Biology M187 and Microbiology and Immunology M187.) Prerequisites: course M185, consent of instructor. Corequisite: course M186. Student presentation of selected papers from the immunology literature. Designed to serve as a forum for the critical analysis of research papers.

Mr. Clark, Mr. Sercarz (W)

**M188. Immunological Techniques (2 units).** (Same as Microbiology and Immunology M188.) Prerequisites: course M185 with a grade of A, consent of instructor. Techniques in immunochemistry and immunobiology. State of the art advanced technology for performance of experiments in modern immunology in a workshop format. Each workshop is of approximately two full days duration.

Mr. Sercarz (W)

**189. Immunological Methods.** Lecture, two hours; laboratory, four hours. Prerequisite: course M185. Immunological and immunochemical techniques used in the modern research and clinical laboratory are emphasized.

(Sp)

**195. Proseminar (2 units).** Discussion, one hour. Prerequisites: senior standing and consent of instructor. Limited enrollment. Small groups of students and instructor discuss current research literature. Topic is announced each quarter.

(F,W,Sp)

**199. Special Studies in Microbiology (2 to 16 units).** To be arranged. Limited to students with superior academic standing and consent of instructor and department Chair (based on written research proposal). Individual research project under the direct supervision of a departmental faculty member. May be repeated for a maximum of sixteen units.

(F,W,Sp)

## Graduate Courses

**C203A. Biochemistry and Biology of Bacterial Infection.** Lecture, three hours. Discussions focus on the biochemical properties of bacteria which afford the potential for pathogenicity. Discussions on the epidemiology and transmission of disease, as well as chemotherapy and drug resistance, are offered. Concurrently scheduled with course C103A. A graduate term paper on a topic approved by the instructor is required.

Mr. Martinez (W)

**C203B. Biochemistry of Host Defense Mechanisms.** Lecture, three hours. The biochemical basis of host defense mechanisms is analyzed in detail. Discussions focus on the role of immunoglobulins in combating microbial invasion; the biology and biochemistry of phagocytic cells and constitutive mechanisms of host defense. Concurrently scheduled with course C103B. A graduate term paper on a topic approved by the instructor is required.

Mr. Martinez (Sp)

**C204A. Molecular Biology of Bacterial Growth (2 units).** Lecture, three hours; discussion, one hour. Prerequisites: course 101, Biology 8, Chemistry 25, or equivalent, or consent of instructor. Introduction to bacterial physiology, with lectures stressing its experimental foundation. Topics include chromosome replication, gene expression, control of growth rate and cell division, role of cyclic AMP and other regulatory factors, cloning and genetic engineering. May be concurrently scheduled with course C104A. Includes an additional discussion section for graduate students on the research literature and methodology. S/U or letter grading.

Mr. Nierlich (Sp, first five weeks)

**C204B. Biochemical Genetics of Eukaryotic Cells (2 units).** Lecture, three hours; discussion, one hour. Prerequisites: prior background in microbiology, biochemistry, and genetics and consent of instructor. Important concepts and experimental approaches in biochemical genetics are illustrated with selected research papers and reviews. Topics include systematic genetic analysis of mammalian cells, somatic cell genetics, developmental genetics, genetic analysis of cancer and human genetic disorders, genetic analysis of hormonal regulation. May be concurrently scheduled with course C104B. Includes an additional discussion section for graduate students on the research literature and methodology. S/U or letter grading.

Mr. Lusis (F, five weeks)

**C204C. The Mammalian Cell as a Microorganism (2 units).** Lecture, three hours; discussion, one hour. Prerequisites: Chemistry 152 and consent of instructor. The cultured mammalian cell as an experimental system for the 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 the study of normal growth and development, disease mechanisms and cancer. May be concurrently scheduled with course C104C. Includes an additional discussion section for graduate students on the research literature and methodology. S/U or letter grading.

Mr. Fox (F, five weeks)

**C204E. RNA Tumor Viruses (2 units).** Lecture, three hours; discussion, one hour. Prerequisites: Chemistry 152 and consent of instructor. The course concentrates on interactions of RNA tumor viruses with differentiating tissues, such as the immune system and erythroid development. May be concurrently scheduled with course C104E. Includes an additional discussion section for graduate students on the research literature and methodology. S/U or letter grading.

Mr. Witte (Sp, five weeks)

**C211. Biology of the Prokaryotic Cell.** Lecture, three hours; discussion, one hour. Prerequisites: course 101 and Chemistry 152, or consent of instructor. A review of current knowledge of the 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 chosen by each graduate student is required.

Mr. Eiserling, Ms. Wisnieski (W)

**M212. Laboratory Procedures in Immunological Research (2 units).** (Same as Microbiology and Immunology M212.) Prerequisites: course M185 or equivalent and consent of instructor. Limited to 25 students (enroll through Microbiology and Immunology). A series of intensive laboratory workshops designed to acquaint the student with the advanced methodologies utilized for immunological research. Workshops are offered at regular intervals and last two to three days. Successful completion of four workshops constitutes the requirements for the course. May be repeated for credit with topic change.

(F,W,Sp)

**213. Clinical Aspects of Membrane Research (2 units).** Prerequisite: consent of instructor. The course discusses recent advances in clinical aspects of biological membrane behavior. Research progress in areas of medical relevance is stressed. S/U or letter grading.

Ms. Wisnieski (F,W,Sp)

**214. Methods in Membrane Biology.** Lecture/discussion, three hours; laboratory, nine hours. Prerequisite: consent of instructor. Emphasis on the basic techniques for isolating and characterizing biological membranes and component molecules. Basic and advanced techniques of membrane biochemistry and biophysics.

Ms. Wisnieski (W, alternate years)

**221U-221Z. Seminars and Symposia on Molecular Biology (2 to 4 units each).** Lecture, two hours; discussion, three hours. Prerequisite: consent of instructor. Seminar courses which integrate topically with symposia organized and sponsored by the Molecular Biology Institute. These international symposia feature leading researchers in selected areas of molecular biology. Students receive an abstract booklet for the symposium and use the abstracts as the starting point for weekly presentations on the topics to be treated at the symposium; in this way they prepare for participation in the symposium. Topics are announced each year on September 1 by the Department of Microbiology and the Molecular Biology Institute.

Mr. Fox and the Staff (W)

**M222. Membrane Behavior.** (Same as Microbiology and Immunology M222.) Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. Membrane structure and biogenesis are described and related to the function of membranes as both barriers to and mediators of normal and pathological biological responses. General principles of membrane behavior are developed from studies of simple and complex model systems. Mr. Bramhall

**M223. Membrane Research Seminar (2 units).** (Same as Microbiology and Immunology M223.) Prerequisite: consent of instructor. Critical discussions of the current literature in membrane research, with emphasis on the relationship between structure and function in lipid bilayers. Mr. Bramhall

**225. Biochemical Methods in Microbial and Cell Biology (2 units).** Prerequisite: consent of instructor. Emphasis on techniques for purification and characterization of proteins, including cell disruption, column chromatography, gel electrophoresis, ultracentrifugation, various optical methods, and use of radioisotopes. Mr. Collier (W)

**225L. Laboratory in Biochemical Methods in Microbial and Cell Biology (6 units).** (Formerly numbered 225.) Laboratory, twelve hours. Prerequisite: consent of instructor. Corequisite: course 225. Laboratory in techniques for purification and characterization of proteins, including cell disruption, column chromatography, gel electrophoresis, ultracentrifugation, various optical methods, and use of radioisotopes. Mr. Collier

**M230A. Structural Molecular Biology (2 units).** (Same as Biology M230A and Chemistry M230A.) Lecture, two hours; discussion, one hour. Prerequisite: consent of instructor based on a written research proposal. Fundamentals of electron microscopy of macromolecules and supramolecular structures, emphasizing quantitative microscopy, high resolution techniques, nucleic acid analysis, and studies on viruses and protein crystals.

Mr. Eiserling, Ms. Kasamatsu, Mr. Lake (F)

**M230C. Structural Molecular Biology Laboratory.** (Same as Biology M230C and Chemistry M230C.) Laboratory, ten hours. Prerequisite: consent of instructor based on a written research proposal. Practical experience with electron microscopy of macromolecules and supramolecular structures, emphasizing quantitative microscopy, high resolution techniques, nucleic acid analysis, and studies on viruses and protein crystals.

Mr. Eiserling, Ms. Kasamatsu, Mr. Lake (F)

**M239. Techniques in Nucleic Acid Research (2 units).** (Same as Biology M239.) Highly recommended corequisite: course M239L. Advanced methods in characterization of genes, including sequence determination. Isolation of nucleic acids by centrifugation, chromatography, and electrophoresis, and characterization by restriction mapping and blot hybridization. Cloning in bacterial and plasmid vectors, sequence determination by the dideoxy technique, computer analysis of sequences.

Mr. Nierlich, Mr. Simpson (Sp)

**M239L. Laboratory in Nucleic Acid Research (6 units).** (Formerly numbered M239.) (Same as Biology M239L.) Laboratory, twelve hours. Corequisite: course M239. Laboratory in advanced methods in characterization of genes, including sequence determination. Isolation of nucleic acids by centrifugation, chromatography, and electrophoresis, and characterization by restriction mapping and blot hybridization. Cloning in bacterial and plasmid vectors, sequence determination by the dideoxy technique, computer analysis of sequences.

Mr. Nierlich, Mr. Simpson (Sp)

**250. Seminar in Microbial Metabolism (2 units).** Mr. Gunsalus, Ms. Lascelles

**251. Seminar in Regulation and Differentiation (2 units).** S/U grading. Mr. Nierlich, Mr. Wilcox

**252. Seminar in Medical Microbiology (2 units).** Mr. Pickett

**253. Seminar in Biochemistry of Host Defense Mechanisms (2 units).** Lecture/discussion, one hour. Prerequisite: consent of instructor. Discussion of the literature dealing with host defense mechanisms. The biochemical mechanisms of action of host defense are stressed. S/U or letter grading.

Mr. Collier, Mr. Martinez

**256. Seminar in Microbial Genetics (2 units).**

Mr. Eiserling, Mr. Romig

**M257. Seminar in Host-Parasite Relationships (2 units).** (Same as Microbiology and Immunology M257.) Prerequisite: consent of instructor. Recent advances in the knowledge of host-parasite interactions and means of controlling the parasites.

Mr. Miller, Mr. Pickett (Sp)

**M258A. Advanced Immunology (3 units).** (Same as Biology M250A and Microbiology and Immunology M258A.) Lecture, 90 minutes; discussion, 90 minutes. Prerequisite: course M185 or Microbiology and Immunology 202A or equivalent or consent of instructor. The course is designed to provide continuity between the basic immunology courses and the original research literature. The major aspects of the immune system are intensively examined, with emphasis on fundamental principles and on advances of the past five years. Featured are lectures dealing with the development of B and T lymphocytes, the interaction of these two lymphocyte subpopulations in the production of immunoglobulin, and cell-mediated immunity. S/U or letter grading. (W)

**M258B. Advanced Immunology (3 units).** (Same as Biology M250B and Microbiology and Immunology M258B.) Lecture, 90 minutes; discussion, 90 minutes. Prerequisites: course M185 or Microbiology and Immunology 202A, or equivalent, and course M258A, or consent of instructor. A continuation of course M258A which considers the fields of immunochemistry, surface membrane receptors, and lymphokines. S/U or letter grading. (Sp)

**M260. Immunology Forum (2 units).** (Same as Microbiology and Immunology M260.) Prerequisite: course M185. A broad range of current topics in immunology is presented and discussed at an advanced frontier level. This is a continuing UCLA-wide, general graduate-level seminar involving faculty, postdoctoral immunologists, and graduate students from diverse departments. Mr. Sercarz (F,W,Sp)

**M263. Cellular Immunology Seminar (2 units).** (Same as Microbiology and Immunology M263.) Prerequisite: consent of instructor. Critical discussions of the current literature in T and B cell immunology, with emphasis on molecular mechanisms.

Mr. Sercarz (F,W,Sp)

**270. Seminar in Molecular Virology (2 units).** Prerequisites: graduate standing and consent of instructor. Discussion and student presentations of recent work in molecular virology, including viral gene expression and function. S/U grading.

Mr. Berk, Mr. Witte (F,W,Sp)

**280. Seminar in Molecular and Cellular Endocrinology (2 units).** Prerequisites: graduate standing and consent of instructor. Discussion and student presentations of recent work in molecular and cellular endocrinology. S/U grading. Mr. Fox (Sp)

**M298. Seminar in Current Topics in Molecular Biology (2 units).** (Same as Biological Chemistry M298, Biology M298, Chemistry M298, Microbiology and Immunology M298, and Molecular Biology M298.) Discussion, one hour. Prerequisite: consent of instructor and graduate adviser of interdepartmental Molecular Biology Ph.D. committee. 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. A teaching apprenticeship under the active guidance and supervision of a regular faculty member responsible for curriculum and instruction at the University. May be repeated for credit. S/U grading.

**596. Directed Individual Research (2 to 12 units).**

**598. Research for M.A. Thesis (2 to 12 units).**

**599. Research for Ph.D. Dissertation (2 to 12 units).**

## Molecular Biology (Interdepartmental)

168 Molecular Biology Institute,  
825-1018

### Professors

Daniel E. Atkinson, Ph.D. (*Biochemistry*)  
Marcel A. Baluda, Ph.D. (*Pathology*)  
Paul D. Boyer, Ph.D. (*Biochemistry*)  
William R. Clark, Ph.D. (*Immunology*)  
R. John Collier, Ph.D. (*Microbiology*)  
Richard E. Dickerson, Ph.D. (*Biochemistry and Geophysics*), Director  
David S. Eisenberg, Ph.D. (*Chemistry and Molecular Biology*)

Frederick A. Eiserling, Ph.D. (*Microbiology*)  
John H. Fessler, Ph.D. (*Biology and Molecular Biology*)

C. Fred Fox, Ph.D. (*Microbiology and Molecular Biology*)

Dohn G. Glitz, Ph.D. (*Biological Chemistry*)

Robert Goldberg, Ph.D. (*Biology*)

Michael Grunstein, Ph.D. (*Biology and Molecular Biology*)

Isaac M. Harary, Ph.D. (*Biological Chemistry*)

Harvey R. Herschman, Ph.D. (*Biological Chemistry*)

Wayne L. Hubbell, Ph.D. (*Ophthalmology and Chemistry*)

James A. Lake, Ph.D. (*Biology and Molecular Biology*)

George G. Laties, Ph.D. (*Biology*)

Jeffrey Miller, Ph.D. (*Biology*)

Donald P. Nierlich, Ph.D. (*Microbiology*)

Dan S. Ray, Ph.D. (*Biology and Molecular Biology*)

Winston A. Salser, Ph.D. (*Biology and Molecular Biology*)

Verne N. Schumaker, Ph.D. (*Biochemistry and Molecular Biology*)

David S. Sigman, Ph.D. (*Biological Chemistry*)

Larry Simpson, Ph.D. (*Biology*)

Roberts A. Smith, Ph.D. (*Biochemistry*)

Clara M. Szego, Ph.D. (*Biology*)

J. Philip Thornber, Ph.D. (*Biology and Molecular Biology*)

Joan S. Valentine, Ph.D. (*Chemistry and Biochemistry*)

Randolph Wall, Ph.D. (*Microbiology and Immunology*)

Charles A. West, Ph.D. (*Biochemistry*)

Felix O. Wettstein, Ph.D. (*Microbiology and Immunology*)

William T. Wickner, M.D. (*Biological Chemistry*)

Gary L. Wilcox, Ph.D. (*Microbiology*)

Irving Zabin, Ph.D. (*Biological Chemistry*)

### Associate Professors

Arnold J. Berk, M.D. (*Microbiology*)

Clifford F. Brunk, Ph.D. (*Biology*)

Steven G. Clarke, Ph.D. (*Chemistry and Biochemistry*)

Jay D. Gralla, Ph.D. (*Biochemistry*)

John M. Jordan, Ph.D. (*Biochemistry and Molecular Biology*)

Harumi Kasamatsu, Ph.D. (*Biology*)

Judith A. Lengyel, Ph.D. (*Biology*)

Harold G. Martinson, Ph.D. (*Biochemistry and Molecular Biology*)

James C. Paulson, Ph.D. (*Biological Chemistry*)

Emil Reisler, Ph.D. (*Biochemistry and Molecular Biology*)  
 Allan J. Tobin, Ph.D. (*Biology*)  
 Elaine M. Tobin, Ph.D. (*Biology*)  
 Richard L. Weiss, Ph.D. (*Biochemistry*)  
 Bernadine J. Wisniewski, Ph.D. (*Microbiology*)  
 Owen N. Witte, M.D. (*Microbiology*)

#### Assistant Professors

Kathryn L. Calame, Ph.D. (*Biological Chemistry*)  
 Asim Dasgupta, Ph.D. (*Microbiology and Immunology*)  
 Lawrence T. Feldman, Ph.D. (*Microbiology and Immunology*)  
 Robert P. Gunsalus, Ph.D. (*Microbiology*)  
 Michael Lovett, M.D., Ph.D. (*Microbiology and Immunology*)  
 Kevin McEntee, Ph.D. (*Biological Chemistry*)  
 Douglas C. Rees, 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 drawn from participating departments and from the Molecular Biology Institute. Areas for study include structure and function of macromolecules, molecular genetics, and virology; bioenergetics, catalysis, and control; molecular basis of chromosome replication and gene expression and of cancer and its control.

## Ph.D. Degree

### Admission

Recommended undergraduate training for the Ph.D. program includes a major in a biological or physical science. Coursework should include mathematics through calculus, one year of general and organic chemistry, one year of physics, two quarters of physical chemistry based on the use of calculus, and one year of biology. Undergraduate requirements may be modified for qualified candidates with interests in certain areas. Candidates who enter the program with course deficiencies will be expected to fulfill these early in the graduate program. In addition to University requirements, six quarters of Molecular Biology M298 are required.

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. Copies of materials sent to the Graduate Admissions Office should also be sent directly to the Graduate Office, Molecular Biology Institute, UCLA, Los Angeles, CA 90024.

### Course Requirements

The usual program is two regular courses per quarter in addition to laboratory research, or the equivalent of 12 quarter units of upper divi-

sion or graduate work. Six quarters of Molecular Biology M298 are required.

### Teaching Experience

Teaching experience is encouraged, although it is not a requirement for the degree.

### Qualifying Examinations

Examinations will be given in Molecular Biology M298, and four must be passed. 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 "midstream seminar" must be presented at least six months prior to the final oral examination (usually during the third year).

### Final Oral Examination

The final oral examination is required of all students for the degree.

## Graduate Course

**M298. Seminar in Current Topics in Molecular Biology (2 units).** (Same as Biological Chemistry M298, Biology M298, Chemistry M298, Microbiology M298, and Microbiology and Immunology M298.) Discussion, one hour. Prerequisite: consent of instructor and graduate adviser of interdepartmental Molecular Biology Ph.D. committee. 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** M248, M253, M255, M257, 259, M261, M264A-M264B-M264C, 265, 266A-266B-266C, M267, M269, M298

**Biology** 227, 228, 229, M230A, M230B, M230C, M230D, 231, 233A-233B, 234, 238, M248, 255, 280, M282, 294, M298

**Chemistry** M230A, M230B, M230C, M230D, M253, M255, M257, 259, M261, 262, M264A-M264B-M264C, 266, M267, M269, 279, M298

**Microbiology** 250, 251, 253, 256, M258A, M258B, M260, M263, 270

**Microbiology and Immunology** 208, 250, 254, M256, M258A, M258B, 261, 262, 265, M282, M293, M298

# Near Eastern Languages and Cultures

376 Kinsey Hall, 825-4165

### Professors

Amin Banani, Ph.D. (*Persian and History*)  
 Arnold J. Band, Ph.D. (*Hebrew*)  
 Andras Bodrogligeti, Ph.D. (*Turkic and Iranian*),  
*Chair*  
 Seeger A. Bonebakker, Ph.D. (*Arabic*)  
 Giorgio Buccellati, Ph.D. (*Ancient Near East and History*)  
 John Callender, Ph.D. (*Egyptology*)  
 Herbert A. Davidson, Ph.D. (*Hebrew*)  
 Ismail Poonawala, Ph.D. (*Arabic*)  
 Yona Sabar, Ph.D. (*Hebrew*)  
 Avedis K. Sanjian, Ph.D. (*Narekatsi Professor of Armenian Studies*)  
 Hanns-Peter Schmidt, Ph.D. (*Indo-Iranian*)  
 Stanislav Segert, Ph.D. (*Biblical Studies and Northwest Semitics*)  
 Wolf Leslau, Docteur ès Lettres, *Emeritus*  
 Moshe Perlmann, Ph.D., *Emeritus*

### Associate Professors

Elizabeth Carter, Ph.D. (*Near Eastern Archaeology*)  
 Lev Hakak, Ph.D. (*Hebrew*)  
 Thomas Penchoen, Ph.D. (*Berber*)

### Assistant Professor

Deborah Lipstadt, Ph.D. (*Jewish Studies*)

### Lecturers

Shimeon Brisman (*Hebrew*)  
 David L. Lieber, D.H.L. (*Hebrew*)

## 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: Arabic, Turkic, Persian, Hebrew, Akkadian, and Egyptian. It also provides instruction in Coptic, Armenian, Berber, and various Turkic languages of Central Asia. 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, and Jewish studies. Masters and Ph.D. programs are available 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, archaeology, the Peace

Corps, journalism abroad, the Foreign Service, and further academic work involving the area.

## Undergraduate Study

The department offers the Bachelor of Arts degree in four fields: (1) Ancient Near Eastern Civilizations, (2) Arabic, (3) Hebrew, and (4) Jewish Studies. In each of these fields you must meet the prerequisites and take the courses prescribed. Your adviser will assist in devising a plan of study developed around your interests.

## 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

Prerequisites for options 1 and 2 are German 1 and 2; prerequisites for options 3 and 4 are Greek 1, 2, Hebrew 1A-1B-1C, 102A-102B-102C. Majors in all four fields will be expected to continue their study of German or Greek beyond the prerequisite 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 quarters of Hebrew 120. The remaining ten courses for all three options are to be selected from the following: three literature courses from Ancient Near East 150A, 150B, 150C, Jewish Studies 150A; three courses in history and religion from Ancient Near East 130, 170, 171, History M104A, M104B, 105, M191A, 193D, 203, Iranian 169, 170; three courses in archaeology and art from Ancient Near East 160A, 160B, 161A, 161B, 161C, 162, Art 102; one course in research methodology (such as Anthropology 115Q, 115R, 116P, or M116Q, or Linguistics 120A, 120B, or English 100A, 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 quarters of Hebrew 120; Ancient Near East 150C, 162, 170; English 108B or History 194A; Greek 130; Jewish Studies 150A; History M191A; Semitics 130. The remaining three courses may be selected from Ancient Near East M104A, M104B, 130, 150A, 150B, 160A, 160B, 171, Art 102, 105A, Classics 168, Greek 131, History 105, 193D, 194B, Iranian 169, 170, Latin 120.

## Bachelor of Arts in Arabic

### Preparation for the Major

*Required*: Arabic 1A-1B-1C, 150A-150B.

### The Major

*Required*: Fifteen courses, including Arabic 102A-102B-102C, 103A-103B-103C, 130A-130B-130C; three courses from Arabic 111A-111B-111C or 140A-140B-140C; History 106A, 106B, 106C.

## Bachelor of Arts in Hebrew

### Preparation for the Major

*Required*: Hebrew 1A-1B-1C, 102A-102B-102C, Jewish Studies 150A-150B, or equivalent.

### The Major

*Required*: Sixteen courses, including Hebrew 103A-103B-103C; three quarters of Hebrew 120; 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, 192A, 192B.

## 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, Jewish Studies 150A-150B, 151A-151B, 199, and five other upper division courses. At least two of the five must be courses in the areas of Hebrew, Jewish history, or Yiddish. The remaining three may be selected either from those areas or from courses with Jewish content given in other departments and approved by the adviser.

## Master of Arts Degree

### Admission

In addition to the regular University requirements, a bachelor's degree or its equivalent in the language area selected for the degree, the Graduate Record Examination Aptitude Test (minimum score of 1500), and three letters of recommendation are required. Prospective students may write to the Department of Near Eastern Languages and Cultures, 376 Kinsey Hall, UCLA, Los Angeles, CA 90024.

### Major Fields or Subdisciplines

Ancient Near Eastern civilizations, Arabic, Armenian, Hebrew, Iranian, Semitics, Turkic.

You may concentrate on either language or literature in your chosen field but will be required to do work in both. In the case of the ancient Near Eastern field, you may concentrate on a combination of both language and literature with Near Eastern archaeology.

## Foreign Language Requirement

You will be required to pass an examination in one major modern European language other than English by the end of the third quarter of residence. The choice of the language will be determined in consultation with your adviser. You may satisfy this requirement by one of the following methods: (1) Educational Testing Service (ETS) examination, (2) departmentally administered examination, (3) two years of college work or equivalent in the language selected. It is strongly recommended that if you intend to continue toward a Ph.D. degree, you acquire knowledge of a second major European language other than English while still a candidate for the M.A. degree.

## Course Requirements

A minimum of nine upper division and graduate courses is required, at least six of which must be on the graduate level. All candidates are required to take one quarter of Near Eastern Languages 200.

Students in ancient Near Eastern civilizations are required to study two ancient languages of the Ancient Near East (Ancient Egyptian, Akkadian, or Hebrew) and the history and archaeology of the related area. The major area of concentration may be either the linguistic, literary, or archaeological aspect of the discipline. Students in Hebrew are required to study Hebrew and another Semitic language; in Semitics, three Semitic languages; in Turkish, two Turkic languages; and in Arabic, Armenian, and Iranian, one other related Near Eastern language in addition to the major language area.

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

After completion of course requirements and the foreign language examination, you will be required to take a written comprehensive final examination in both your major and related fields administered by your guidance committee. You may be reexamined a second time.

## Ph.D. Degree

### Admission

In addition to the regular University requirements, an M.A. or equivalent in your field, the Graduate Record Examination Aptitude Test (minimum score of 1500), and three letters of recommendation are required. Prospective

students may write to the Department of Near Eastern Languages and Cultures, 376 Kinsey Hall, UCLA, Los Angeles, CA 90024.

The M.A. program need not have been completed at UCLA.

### Major Fields or Subdisciplines

Ancient Near Eastern civilizations, Arabic, Armenian, Hebrew, Iranian, Semitics, Turkic.

You may concentrate on either language or literature in your chosen field but will be required to do work in both. In all areas of specialization, your program of study will be devised in consultation with your adviser.

### Foreign Language Requirement

Two modern major European languages other than English are required. The choice of languages must be approved by the adviser, who may also require additional language skills in modern and/or ancient languages if such skills are needed for scholarly work in the area of your interests.

The requirement is fulfilled by one of the following options: (1) passing the Educational Testing Service (ETS) examination, (2) passing an examination administered by the department with a minimum grade of B, or (3) taking two years of college work or equivalent in the language selected.

You are expected to pass one of the two required European languages at the beginning of your first quarter in residence and the second language no later than the beginning of the fourth quarter.

### Course Requirements

If you are specializing in the languages of the Near East, you are expected to take the equivalent of one year of general linguistics and one year of grammar in your field of concentration (e.g., Semitics or Turkic). You must also achieve competence in three related languages within your field of concentration, with particular emphasis on two major languages. You are also advised to acquaint yourself with the historical, literary, religious, and social background of the various language areas of your interest.

If you are specializing in the literatures of the Near East, you are required to achieve competence in two languages; your second language must be a literary language from the cultural area related to your first language (e.g., a Hebraist can choose Akkadian, Arabic, Aramaic, or Yiddish; an Arabist can choose Persian or Turkish, and so on). You must also be familiar with the history of literary criticism and methods of literary research. This requirement may be fulfilled by taking courses offered by various departments at UCLA, particularly the course in literary criticism offered by the English Department or the course in the methodology of comparative literature.

If you are specializing in ancient Near Eastern civilizations, you will be required to achieve competence in two ancient languages. Your major area of concentration may be in either the linguistic, literary, or archaeological aspect of the discipline.

### Qualifying Examinations

Before the Chair of the department recommends the formation of a doctoral committee, you must pass written qualifying examinations.

Candidates in languages will be examined in three Near Eastern languages and the literary and historical background of at least two of them. Candidates in literature will be 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 will be examined in two ancient languages and the history and archaeology of the major areas of the Ancient Near East.

When you have passed the written examinations, your doctoral committee will administer the University Oral Qualifying Examination. Passing this examination allows you to advance to candidacy and begin work on the dissertation.

### Final Oral Examination

The department does not require an oral defense of the dissertation except when deemed necessary by the doctoral committee.

### Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## 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.) Course M104A is not prerequisite to M104B. The course studies the political and cultural institutions of ancient Egypt and the ideas on which they were based. Discussion proceeds chronologically and covers Prehistory, the Old and Middle Kingdom in **M104A**. **M104B** covers the New Kingdom and the Late period until 332 B.C.

Mr. Callender

**120A-120B-120C. Elementary Ancient Egyptian.** Lecture, three hours; laboratory, two hours. Prerequisite: consent of instructor. Grammar and texts.

Mr. Callender

**121A-121B-121C. Intermediate Ancient Egyptian.** Lecture, three hours. Prerequisites: courses 120A-120B-120C. Readings in ancient Egyptian literature.

Mr. Callender

**123A-123B. Coptic.** Lecture, three hours. Prerequisite: consent of instructor. An introduction to Coptic grammar and reading of Coptic texts.

Mr. Callender

**124. Middle Egyptian Technical Literature.** Prerequisite: course 121C. Reading of Middle Egyptian technical literature in hieroglyphic transcription. Included are medical, veterinary, mathematical, and astronomical texts.

Mr. Callender

**130. Ancient Egyptian Religion.** Lecture, three hours. An introductory survey of various ancient Egyptian religious beliefs and practices, their origin, and development. Included are discussions of religious-political institutions such as divine kingship and pious foundations.

Mr. Callender

**140A-140B. Elementary Sumerian.** Lecture, three 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.

Mr. Buccellati, Mr. Callender, Mr. Segert

**160A-160B. Introduction to Near Eastern Archaeology.** Lecture, three hours. Terminology, geography, principles, strategy of research, bibliography, and a general survey of Near Eastern archaeology.

Ms. Carter

**161A-161B-161C. Archaeology of Mesopotamia.** Prerequisite: consent of instructor. Survey of the 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.

Ms. Carter

**162. Archaeology of Palestine.** Lecture, three hours. A survey of the archaeology of Palestine and the Sinai Peninsula from the Paleolithic to the destruction of Jerusalem in 586 B.C., with emphasis on the geographic setting and relationships to the other cultures of the Near East.

**163A-163B. Archaeology of Iran.** Lecture, three hours. Designed to introduce students to Iranian archaeology from prehistoric through Achaemenid times. **163A** focuses on the prehistoric and protohistoric phases of Iranian archaeology. **163B** covers the archaeology of Elam, the Iron Age, and the Achaemenid Empire.

Ms. Carter

**164A-164B-164C. The Archaeology of the Historic Periods in Mesopotamia.** Prerequisites: History 105, Ancient Near East 161A-161B-161C, or consent of instructor. Survey of the main archaeological periods in Mesopotamia, with special emphasis on the historic periods and with reference to neighboring cultural areas. Each course may be taken independently for credit.

**170. Introduction to Biblical Studies.** Lecture, two hours. Knowledge of original languages is 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.

Mr. Segert

**171. Old Testament: Hebrew and Septuagint Texts.** Lecture, two hours. Prerequisites: Hebrew 102A-102B-102C, Greek 1, 2, or consent of instructor. Study of the Hebrew original and of the Greek version of the Old Testament books.

Mr. Segert

**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 and consent of instructor. Late Egyptian grammar and reading of both hieroglyphic and hieratic texts. May be repeated for credit.

Mr. Callender



**211A-211B. Texts of the Greco-Roman Period.** Prerequisite: course 121C. Introduction to the grammar and orthography of hieroglyphic texts from Greco-Roman temples. Text readings and translation of various textual types. Mr. Callender

**220. Seminar in Ancient Egypt.** Seminar, three hours. Prerequisite: consent of instructor. May be repeated for credit. Mr. Callender

**221A-221B. Demotic.** Prerequisite: course 121C. Introduction to Demotic grammar and orthography. Reading of texts from various genres. Mr. Callender

**240A-240B-240C. Seminar in 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 in Ancient Mesopotamia.** (Same as History M207.) Selected topics on the political, social, and intellectual history of ancient Mesopotamia. May be repeated for credit. Mr. Buccellati

**250X. Seminar in Ancient Mesopotamia (1 unit).** Prerequisite: consent of instructor. Selected topics on the political, social, and intellectual history of ancient Mesopotamia. A course for students who participate regularly in class meetings but without the homework required in course M250. May be repeated for credit. Mr. Buccellati

**260. Seminar in 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 supervision of the staff. May be repeated. Mr. Buccellati, Ms. Carter

**262. Seminar in Object Archaeology.** Discussion, two hours; laboratory, one hour. Prerequisite: consent of instructor. Selected topics in the analysis and interpretation of Near Eastern archaeological finds in museum collections. Students work with objects in the Heermanek Collection of the Los Angeles County Museum of Art. Ms. Carter

**272. Semitic Background of the New Testament.** (Formerly numbered 172.) Lecture, two hours. Prerequisites: Hebrew 102A-102B-102C, Semitics 130, Greek 1, 2, or consent of instructor. Study of the Semitic elements in the Greek New Testament: traditions transmitted in Aramaic, relations to the Old Testament and to the post-Biblical literature, and Palestinian Judaism. Mr. Segert

**596. Directed Individual Study (2 to 8 units).** May be repeated for credit.

**597. Examination Preparation (2 to 8 units).**

**599. Ph.D. Dissertation Research and Preparation (2 to 8 units).**

## Related Courses in Other Departments

**Art 101A.** Egyptian Art and Archaeology

**History M104A-M104B.** Ancient Egyptian Civilization

105. 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 Arabic.** Lecture, four hours; laboratory, two hours. Basic structure. Mr. Sbait

### Upper Division Courses

**102A-102B-102C. Intermediate Arabic.** Prerequisites: courses 1A-1B-1C or consent of instructor. Readings in both classical and modern Arabic, composition, conversation. Mr. Sbait

**103A-103B-103C. Advanced Arabic.** Prerequisites: courses 102A-102B-102C or consent of instructor. Review of grammar, continued reading of literary works. Composition, conversation, and a weekly lecture in Arabic. Mr. Poonawala

**111A-111B-111C. Spoken Arabic.** Lecture, three hours. Prerequisites: courses 102A-102B-102C. Introduction to one Arabic dialect with some comparison of the other dialects. May be repeated once for credit by consent of instructor.

**112A-112B-112C. Spoken Egyptian Arabic.** (Formerly numbered 112.) Discussion, three hours; laboratory, two hours. Prerequisites: courses 111A-111B-111C or consent of instructor. The syntactic and morphological structures of spoken Egyptian Arabic are treated in a more elaborate and in-depth fashion than first-year spoken Arabic, which is on an elementary level. Excerpts of literary texts in colloquial Arabic (plays, short stories, poetry) and folk literature constitute the basic material for the course. Emphasis on conversation, laboratory exercises. The study of dialectology is included. Oral and written tests are administered.

**113A-113B-113C. Spoken Iraqi Arabic.** Lecture, three hours. Prerequisites: courses 102A-102B-102C. Introduction to the contemporary Arabic dialect of Iraq. Phonology, morphology, and syntax are presented, with emphasis on oral practice.

**114A-114B-114C. Spoken Moroccan Arabic.** Lecture, three hours; laboratory, one hour. Introduction to the spoken Arabic dialect of Morocco. Phonology, morphology, and syntax are presented. Emphasis on developing oral skills. Mr. Penchoen

**130A-130B-130C. Classical Arabic Texts.** Lecture, three hours. Prerequisites: courses 102A-102B-102C. Reading and interpretation of texts from classical Arabic literature: Koran, historiography, geography, and poetry. Mr. Bonebakker

**132A-132B-132C. Philosophical Texts.** Lecture, three hours. Prerequisites: courses 102A-102B-102C or consent of instructor. A study of excerpts from the major works of medieval Arab philosophy.

**140A-140B-140C. Modern Arabic Texts.** Lecture, three hours. Prerequisites: courses 102A-102B-102C. Readings and interpretation of modern Arabic texts. Mr. Sbait

**141. Modern Arabic Literature.** Lecture, three hours. Prerequisites: courses 140A-140B-140C or equivalent. Readings of selected texts representing the most important modern styles and trends. May be repeated once for credit by consent of instructor. Mr. Sbait

**150A-150B. Survey of Arabic Literature in English.** Lecture, three hours. Knowledge of Arabic is not required. Each course may be taken independently for credit. Mr. Bonebakker

**199. Special Studies in Arabic (2 to 8 units).** Prerequisite: consent of instructor.

### Graduate Courses

**220A-220B-220C. Islamic Texts.** Lecture, two hours. Scripture and interpretation in Islam; traditional scholarship; historical and literary problems of modern research; selections from various fields of Islamic thought. May be repeated for credit. Mr. Poonawala

**230A-230B-230C. Arabic Poetry.** Lecture, two hours. Prerequisite: consent of instructor. Readings in Arabic poetry from various periods. Each course may be taken independently for credit. Mr. Bonebakker

**240A-240B-240C. Arab Historians and Geographers.** Lecture, two hours. Readings from the works of the most outstanding Arab historians and geographers of the classical period of Islam. Mr. Poonawala

**250A-250B-250C. Seminar in Arabic Literature.** Seminar, two hours. May be repeated for credit by consent of instructor. Mr. Bonebakker

**260A-260B-260C. Introduction to Modern Arabic Dialects.** Lecture, three hours. Prerequisites: courses 103A-103B-103C or consent of instructor. Survey of partition and geographic distribution of modern Arabic dialects; common structural features and contrasts with classical Arabic; sociolinguistic evaluation of the Arabic diglossia; analysis of representative texts.

**280. Structure of Classical Arabic.** Lecture, three hours. Prerequisites: courses 103A-103B-103C or consent of instructor. The patterning of classical Arabic at the morphophonemic, morphological, and morphosyntactic structural levels; application of traditional, statistical, and generative methods to the synchronic investigation of structural features.

**596. Directed Individual Study (2 to 8 units).** May be repeated for credit.

**597. Examination Preparation (2 to 8 units).**

**599. Ph.D. Dissertation Research and Preparation (2 to 8 units).**

## Related Courses in Another Department

**History 106A-106B-106C.** Survey of the Middle East from 500 to the Present

204A-204B. Seminar in Near and Middle Eastern History

## Armenian

### Upper Division Courses

**101A-101B-101C. Elementary Modern Armenian.** Armenian grammar, conversation, and exercises. Mr. Sanjian

**102A-102B-102C. Intermediate Modern Armenian.** Prerequisites: courses 101A-101B-101C or equivalent. Reading of selected texts, composition, and conversation. Mr. Sanjian

**103A-103B-103C. Advanced Modern Armenian.** Lecture, three hours. Prerequisites: courses 102A-102B-102C or equivalent. Readings in advanced modern Armenian texts. Mr. Sanjian

**130A-130B. Elementary Classical Armenian.** Lecture, three hours. Grammar of the classical Armenian language and readings of selected texts. Mr. Sanjian

**131A-131B. Intermediate Classical Armenian.** Lecture, three hours. Prerequisites: courses 130A-130B or equivalent. Reading of selected texts. Mr. Sanjian

**132A-132B. Advanced Classical Armenian.** Lecture, three hours. Prerequisites: courses 131A-131B or equivalent. Readings in advanced classical Armenian texts. Mr. Sanjian

**150A-150B. Survey of Armenian Literature in English.** Lecture, three hours. Knowledge of Armenian is not required. Each course may be taken independently for credit. Mr. Sanjian

**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 the context of the Armenian cultural renaissance. Mr. Sanjian

**199. Special Studies in Armenian Language and Literature (2 to 8 units).** Prerequisite: consent of instructor. Mr. Sanjian

## Graduate Courses

**207. Armenian Intellectual History.** Lecture, three hours. Intellectual and cultural trends reflected in Armenian literature, historiography, religious and philosophical thought. Mr. Sanjian

**210. History of the Armenian Language.** Lecture, three hours. Prerequisite: consent of instructor. The development of the Armenian language in its various stages: classical, middle, and modern.

Mr. Sanjian

**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; course concentrates on both original works and those translated from Greek and Syriac. Mr. Sanjian

**250A-250B. Seminar in Armenian Literature.** Seminar, three hours. Prerequisite: consent of instructor. Selected topics from various periods of Armenian literature. May be repeated for credit.

Mr. Sanjian

**290. Seminar in Armenian Paleography.** Seminar, three hours. Prerequisite: consent of instructor. Discussion of a variety of Armenian scripts and training in the use of manuscripts. Mr. Sanjian

**596. Directed Individual Study (2 to 8 units).** May be repeated for credit. Mr. Sanjian

**597. Examination Preparation (2 to 8 units).**

Mr. Sanjian

**599. Ph.D. Dissertation Research and Preparation (2 to 8 units).** Mr. Sanjian

## 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. Seminar in 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. Mr. Penchoen (F,W,Sp)

**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. Mr. Penchoen (F,W,Sp)

**120A-120B-120C. Introduction to Berber Literature.** Lecture, three hours. Prerequisites: courses 102A-102B-102C or consent of instructor. The development of Berber literary forms: systematic analysis of texts and a study of Berber writing systems. Mr. Penchoen (F,W,Sp)

**130. The Berbers.** Examination of the main features of Berber societies and cultures, with particular attention to social structures and institutions on the one hand, and to customs, values, and beliefs on the other. The course presents a broad framework within which the study of particular aspects of Berber cultures may be pursued. Mr. Penchoen (Sp)

**199. Special Studies in Berber Languages (2 to 8 units).** Prerequisite: consent of instructor. Study based on the requirements of the individual student.

Mr. Penchoen

## 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. Mr. Sabar (F,W,Sp)

**10A-10B-10C. Accelerated Elementary Hebrew.** Lecture, five hours. Open to students who wish to cover the equivalent of two years of college Hebrew in one academic year. Designed for students who have previously studied the 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. Mr. Davidson (F,W,Sp)

### Upper Division Courses

**102A-102B-102C. Intermediate Hebrew.** Lecture, five hours. Prerequisites: courses 1A-1B-1C or equivalent. Amplification of grammar; reading of vocalized texts from modern, biblical, and medieval/rabbinic literature. Section 1 is for students with strong grammatical background; section 2, for students with strong conversational background. The two sections should be equal in both language skills by the end of Winter Quarter. Mr. Sabar (F,W,Sp)

**103A-103B-103C. Advanced Hebrew.** Lecture, three hours; discussion, two hours. Prerequisites: courses 102A-102B-102C or equivalent. Introduction to modern Hebrew literary texts.

Mr. Hakak (F,W,Sp)

**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.

Mr. Lieber (F,W,Sp)

**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. Mr. Davidson (F)

**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 sixteen units. Mr. Davidson (W)

**140. Modern Hebrew Poetry and Prose.** Lecture, three hours. Prerequisites: courses 103A-103B-103C and consent of instructor. A study of the major Hebrew writers of the past one hundred years: prose — Mendele, Ahad Ha'am, Agnon, Yizhar; poetry — Bialik, Tchernichovsky, Greenberg, Shlonsky, Alterman, Amichai. May be repeated for credit.

Mr. Hakak (F,Sp)

**160. The Hebrew Essay.** Lecture, three hours. Prerequisites: courses 103A-103B-103C or consent of instructor. The Hebrew essay from its rise in Europe in the late 18th century to the contemporary Israeli essay. The literary, political, philosophical, and scholarly essay is studied. May be repeated for credit.

Mr. Hakak

**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 the development of the 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).

Mr. Sabar (alternate years)

**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. The development of the Hebrew language in its various stages: biblical, Mishnaic, medieval, modern, and Israeli; differences in vocabulary, morphology, syntax, and the influence of other languages; problems of language expansion in Israeli Hebrew. May be repeated for credit. Mr. Sabar

**220. Studies in Hebrew Biblical Literature.** Lecture, three hours. A critical study of the Hebrew text in relation to the major versions; philological, comparative, literary, and historical study of various biblical books. May be repeated for credit. Mr. Segert

**230. Seminar in Medieval Hebrew Literature.** Seminar, three hours. May be repeated for credit.

Mr. Davidson (F,W)

**231. Texts in Judeo-Arabic.** Prerequisite: reading knowledge of Hebrew and Arabic. Reading of philosophical texts in Judeo-Arabic. Mr. Davidson

**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. Mr. Band (W,Sp)

**242. Studies in Modern Hebrew Poetry.** Studies in specific problems and trends in Hebrew poetry of the last two centuries. Mr. Band (W,Sp)

**596. Directed Individual Study (2 to 8 units).** May be repeated for credit.

**597. Examination Preparation (2 to 8 units).**

**599. Ph.D. Dissertation Research and Preparation (2 to 8 units).**

## Iranian

### Lower Division Courses

**10A-10B-10C. Persian Conversation (2 units each).** Lecture, three hours. Prerequisite: consent of instructor. Systematic and structured Persian conversation.

### Upper Division Courses

**101A-101B-101C. Elementary Persian.** Lecture, four hours; laboratory, two hours. Mr. Banani

**102A-102B-102C. Intermediate Persian.** Lecture, three hours; laboratory, three hours. Prerequisites: courses 101A-101B-101C or equivalent. Mr. Banani

**103A-103B-103C. Advanced Persian.** Lecture, three hours. Prerequisites: courses 102A-102B-102C or equivalent.

**140. Contemporary Persian Belle Lettres.** Lecture, three hours. Prerequisites: courses 103A-103B-103C or equivalent and consent of instructor. A study of the major Persian poets and prose writers of the 20th century: prose — Jamalzadeh, Hedayat, Chubuk, Al Ahmad, Sa'edi, Golestan; poetry — Nima, Shamlu, Farrokhzad, Akhavan. Mr. Banani

**141. Contemporary Persian Analytical Prose.** Lecture, three hours. Prerequisites: courses 102A-102B-102C or equivalent and consent of instructor. A study of selected modern Persian analytical and expository prose texts, with emphasis on social sciences, literary criticism, and history. Mr. Banani

**150A-150B. Survey of Persian Literature in English.** Lecture, three hours. Knowledge of Persian is not required. Each course may be taken independently for credit. Mr. Banani

**169. Civilization of Pre-Islamic Iran.** A survey of Iranian culture from the beginnings through the Sasanian period. Mr. Schmidt

**170. Religion in Ancient Iran.** History of religion in Iran from the beginning to the Mohammedan conquest; Indo-Iranian background, Zoroastrianism, Manichaeism, Mazdakism. Mr. Schmidt

**190A-190B. Introduction to Modern Iranian Studies.** Lecture, three hours. Prerequisites: courses 101A-101B-101C or equivalent. Survey of the Iranian languages. Comparative and historical grammar. Mr. Bodrogligeti

**199. Special Studies in Iranian (2 to 8 units).** Prerequisite: consent of instructor.

## Graduate Courses

**211A-211B. Modern Iranian Dialects.** Prerequisites: Linguistics 100 or equivalent and consent of instructor. A survey of the northwestern and southwestern Iranian languages and their interaction with the non-Iranian languages of Iran. Discussion includes historical development, linguistic affinities, and modern distribution. Material gathered in the field supplements lectures. May be repeated for credit by consent of instructor.

**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. Mr. Banani

**221. Rumi, the Mystic Poet of Islam.** Lecture, three hours. Prerequisites: course 220A or 220B or equivalent and consent of instructor. A study of the life and works of Rumi in the context of interaction of Sufism and poetic creativity. Mr. Banani

**M222A-M222B. Vedic.** (Same as East Asian Languages and Cultures M222A-M222B.) Prerequisites: knowledge of Sanskrit equivalent to East Asian Languages and Cultures 162 and consent of instructor. Characteristics of the Vedic dialect and readings in the Rig-Vedic hymns. Only course M222B may be repeated for credit. Mr. Schmidt

**230A-230B. Old Iranian.** Prerequisite: consent of instructor. Studies in the grammars and texts of Old Persian and Avestan. Comparative considerations. Only course 230B may be repeated for credit. Mr. Schmidt

**231A-231B. Middle Iranian.** Prerequisite: consent of instructor. Studies in the grammars and texts of such Middle Iranian languages as best serve the students' needs (e.g., Pahlavi, Sogdian, Sakian). Only course 231B may be repeated for credit. Mr. Schmidt

**250. Seminar in Classical Persian Literature.** Seminar, three hours. Prerequisites: courses 103A-103B-103C and 199, or consent of instructor. May be repeated twice for credit. Mr. Banani

**251. Seminar in Contemporary Persian Literature.** Seminar, three hours. Prerequisites: course 140 or equivalent and consent of instructor. Studies in specific problems and trends in Persian poetry and prose in the 20th century. Mr. Banani

**596. Directed Individual Study (2 to 8 units).** May be repeated for credit.

**597. Examination Preparation (2 to 8 units).**

**599. Ph.D. Dissertation Research Preparation (2 to 8 units).**

## Related Courses in Other Departments

**East Asian Languages and Cultures 160.** Elementary Sanskrit

161. Intermediate Sanskrit

162. Advanced Sanskrit

**History 110A-110B.** Iranian History

**Indo-European Studies 210.** Indo-European Linguistics: Advanced Course

280A-280B. Seminar in Indo-European Linguistics

**Music 81L.** Music of Persia

91L. Music of Persia

## Islamics

### Upper Division Course

**110. Introduction to Islam.** Lecture, three hours. The course treats the genesis of Islam, its doctrines, and practices with readings from the Qur'an; forms of Islam: tensions and schism; reform and modernism. Mr. Poonawala

## Graduate Courses

**596. Directed Individual Study (2 to 8 units).** May be repeated for credit.

**597. Examination Preparation (2 to 8 units).**

**598. M.A. Thesis Research and Preparation (2 to 8 units).**

**599. Ph.D. Dissertation Research and Preparation (2 to 8 units).**

## Related Courses in Another Department

**History 107A-107B.** Islamic Civilization

## Jewish Studies

### Upper Division Courses

**110. Social, Cultural, and Religious Institutions of Judaism.** The course examines Judaism's basic beliefs, institutions, and practices. Topics include the development of biblical and rabbinic Judaism; the concepts of god, sin, repentance, prayer, and the messiah; the history of the Talmud and the synagogue; the evolution of folk beliefs and yearcycle and lifecycle practices. Ms. Lipstadt (F,Sp)

**130. Modern Jewish National Movements.** Lecture, three hours. Study of the evolution of modern Jewish national movements, with particular emphasis on the history of Zionism and Diaspora nationalism. Covers the period up to 1948. Ms. Lipstadt (W)

**140A-140B. American Jewish History.** Lecture, three hours. An examination of the social and cultural history of the American Jewish community from its inception to the present, with emphasis on the integration of successive immigrants and the development of institutions. **140A** covers the period from 1654 to 1914. **140B** covers the period from 1914 to the present. Ms. Lipstadt (W,140B)

**141. Modern Anti-Semitism.** Lecture, three hours. An examination of modern anti-Semitism from the 18th century to the present; a comparison of modern racist ideologies with premodern theories; case studies (e.g., the Dreyfus affair, the Beiliss Trial, the Holocaust); Jewish reactions to these phenomena. Ms. Lipstadt

**142. The History and Institutions of the State of Israel.** Lecture, three hours. A study of the social and cultural development of the State of Israel from its pre-state institutional structures to the present, with emphasis on major trends, personalities, and ideologies, and the state's position in the wider framework of modern Jewish history. Ms. Lipstadt

**M143. Introduction to Jewish Folklore.** (Same as Folklore M142.) The nature of Jewish folklore; narrative, folk song, folk art, folk religion, and the methods and perspectives used in their analysis.

**150A-150B. Hebrew Literature in English.** Lecture, three hours. Each course may be taken independently for credit. **150A.** Biblical and Apocryphal Literature; **150B.** Rabbinic and Medieval Literature. Mr. Band, Mr. Davidson

**151A-151B. Modern Jewish Literature in English.** Lecture, three hours. Each course may be taken independently for credit. **151A.** Diaspora Literature; **151B.** Israeli Literature. Mr. Band, Mr. Hakak (F, 151A; W, 151B)

**190. Undergraduate Seminar in Jewish Studies.** The course examines a single topic in depth with the object of encouraging and guiding students' research in the area of Jewish studies. Literary, cultural, and historical subjects are included. Ms. Lipstadt (F,Sp)

**M191A-M191B. Survey of Jewish History.** (Same as History M191A-M191B.) A survey of social, political, and religious developments. **M191A.** From Biblical Times to the End of the Middle Ages; **M191B.** From the End of the Middle Ages to the Present. Mr. Funkenstein

**199. Special Studies in Jewish Studies (2 to 8 units).** Limited to Jewish studies majors.

## Related Courses in Another Department

**History 191C-191D.** Focal Themes in Jewish History  
**192A-192B.** Jewish Intellectual History

## Near Eastern Languages

### Upper Division Course

**130. Archaeology in Armenia and in the Caucasus.** Lecture, three hours. A survey of the cultures of Armenia and the Caucasus from late prehistoric to medieval times, from the viewpoint of artifactual evidence. Major recent excavations and finds are especially highlighted. Mr. Arakelian

## Graduate Courses

**200. Bibliography and Method of Near Eastern Languages and Literatures.** Lecture, two hours. Prerequisite: consent of instructor. Required for the M.A. degree. Introduction to bibliographical resources and training in methods of research in various areas of specialization offered by the department. May be repeated for credit.

**210. Survey of Afro-Asiatic Languages.** Lecture, three hours. Prerequisite: consent of instructor. A survey of the structures of a number of the representative languages from various major branches of the 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 in Paleography.** Seminar, three hours. Provides students with the 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. A teaching apprenticeship under the 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. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. S/U grading.

**596. Directed Individual Study (2 to 8 units).** May be repeated for credit.

**597. Examination Preparation (2 to 8 units).**

**599. Ph.D. Dissertation Research and Preparation (2 to 8 units).**

## Semitics

### Upper Division Courses

**110. Neo-Aramaic.** Lecture, three hours. Grammar and reading of selected texts (folktales, homilies, songs) in the modern Aramaic dialects of the Jews and Christians of Kurdistan. Mr. Sabar

**130. Biblical Aramaic.** Lecture, three hours. Prerequisites: Hebrew 102A-102B-102C or consent of instructor. Grammar of biblical Aramaic and reading of texts. Mr. Segert

**140A-140B. Elementary Akkadian.** Lecture, three hours. Elementary grammar and reading of texts in standard Babylonian. Mr. Buccellati

**141. Advanced Akkadian.** Lecture, three hours. Prerequisite: consent of instructor. Old Babylonian syntax; reading of basic Old Babylonian texts. Mr. Buccellati

**142. Akkadian Literary Texts.** Lecture, three hours. Prerequisite: consent of instructor. Selected readings from Akkadian myths and epics, with an introduction to the historical tradition of the works and their literary structure. Mr. Buccellati

### Graduate Courses

**201A-201B-201C. Old Ethiopic.** Lecture, two hours. Grammar of Old Ethiopic and reading of texts.

**202A-202B-202C. Readings in Old Ethiopic Literature.** Lecture, two hours. Prerequisites: courses 201A-201B-201C.

**209A-209B-209C. Comparative Study of the Ethiopian Languages.** Lecture, two hours. Prerequisite: consent of instructor. Comparative study of the various Semitic Ethiopian languages: Geez, Tigrinya, Tigre, Amharic, Harari, Gurage, and Gafat.

**210. Ancient Aramaic.** Lecture, two hours. Prerequisite: course 130 or consent of instructor. Reading of the surviving inscriptions and papyri. May be repeated for credit. Mr. Segert

**215A-215B. Syriac.** Lecture, two hours. Morphology and syntax of the Syriac language; readings in the Syriac translation of the Bible and Syriac literature. Only course 215B may be repeated for credit.

**220A-220B. Ugaritic.** Lecture, two hours. Prerequisites: Hebrew 102A-102B-102C or consent of instructor. Study of the Ugaritic language and literature. Only course 220B may be repeated for credit. Mr. Segert

**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. Mr. Segert

**230. Seminar in Northwest Semitic Languages and Literatures.** Seminar, two hours. Prerequisite: consent of instructor. May be repeated for credit. Mr. Segert

**240. Seminar in Akkadian Language.** Seminar, two hours. Prerequisite: consent of instructor. Readings of texts from various dialects of Akkadian; selected problems in the linguistic analysis of Akkadian dialects. May be repeated for credit. Mr. Buccellati

**240X. Seminar in Akkadian Language (1 unit).** Prerequisite: consent of instructor. Readings of texts from various dialects of Akkadian; selected problems in the linguistic analysis of Akkadian dialects. A course for students who participate regularly in class meetings but without the homework required in course 240. May be repeated for credit. Mr. Buccellati

**241. Seminar in 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. Mr. Buccellati

**241X. Seminar in Akkadian Literature (1 unit).** Prerequisite: consent of instructor. Readings of texts from various Akkadian literary genres; selected problems in literary history and stylistic analysis. A course for students who participate regularly in class meetings but without the homework required in course 241. May be repeated for credit. Mr. Buccellati

**280A-280B-280C. Seminar in Comparative Semitics.** Seminar, two hours.

**290A-290B-290C. Comparative Morphology of the Semitic Languages.** Lecture, two hours. Prerequisites: courses 280A-280B-280C or consent of instructor. Comparative study of the noun and verb of the various Semitic languages (Arabic, Hebrew, Ethiopic, Akkadian, and Aramaic). Mr. Leslau

**596. Directed Individual Study (2 to 8 units).** May be repeated for credit.

**597. Examination Preparation (2 to 8 units).**

**599. Ph.D. Dissertation Research and Preparation (2 to 8 units).**

## Turkic Languages

### Upper Division Courses

**101A-101B. Elementary Turkish.** Lecture, five hours. Grammar, reading, conversation, and elementary composition drills. Mr. Jaekel (F,W)

**102A-102B. Intermediate Turkish.** Lecture, five hours. Prerequisites: courses 101A-101B or equivalent. Continuing study of grammar, reading, conversation, and composition drills. Mr. Jaekel (Sp, 102A)

**103A-103B. Advanced Turkish.** Lecture, five hours. Prerequisites: courses 102A-102B or equivalent. Reading in modern literature and social science texts; conversation and composition. Mr. Jaekel (W, 103A; Sp, 103B)

**112A-112B-112C. Uzbek.** Lecture, three hours. Prerequisite: course 102A or consent of instructor. Grammar, composition drills, reading of literary and folkloric texts. Mr. Bodrogligeti

**114A-114B-114C. Bashkir.** Lecture, three hours. Prerequisite: course 102A or consent of instructor. Grammar, reading of literary and folkloric texts. Mr. Bodrogligeti

**160. Cultural History of the Turks.** (Formerly numbered 160A-160B.) Lecture, three hours. Prerequisite: consent of instructor. A survey of the cultural history of the Turks, as seen primarily through their literature, from their early history to the present. Mr. Bodrogligeti

**170. Turco-Mongolian Nomadic Empires.** Lecture, three hours. Prerequisite: consent of instructor. Required of students in the Turkic program. A survey of the history of Turkic and Mongolian dominions from the 3rd century B.C. to A.D. 19th century (Hsiung-nu, Hsien-pi, Juan-Juan, T'u-Chueh, Uyghur, Khitan, Karakhanid, Seljuq, Kara-Khitay, Khorazmian, Jengiz-Khanite). Mr. Bodrogligeti

**180. Modern Turkic Languages and Peoples.** (Formerly numbered 180A-180B-180C.) Lecture, three hours. Prerequisite: consent of instructor. Required of students in the Turkic program and recommended for students in Soviet studies. An ethnic and linguistic survey of the Turkic peoples. Mr. Bodrogligeti

**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 the literary language of the Ottoman Empire from its foundation in the 14th century to its overthrow in the 20th century for students of the history, literature, and religion of the Balkans, the Near East, and Central Asia. Topics include the Arabic script as applied to Ottoman; Arabic and Persian elements in grammar and vocabulary. Readings of historical and literary texts. Mr. Jaekel (F,W,Sp)

**211. Ottoman Diplomatics.** Lecture, three hours. Prerequisites: courses 210A-210B-210C or equivalent. Organization and contents of the Ottoman archives; reading and discussion of documents and registers. Introduction to the use of Ottoman archive materials as a source for historical research. Mr. Shaw

**220A-220B-220C. Chagatay.** Lecture, three hours. Prerequisites: courses 101A-101B or 112A-112B-112C or 114A-114B-114C or consent of instructor. Introduction to Chagatay: descriptive grammar; Arabic, Persian, and Tajik elements in grammar and vocabulary. Readings and composition drills. Mr. Bodrogligeti

**225A-225B-225C. Old Turkic: Turk and Uygur.** Lecture, three hours. Prerequisites: courses 180A-180B-180C and consent of instructor. Textual and linguistic analysis of Turk and Old Uygur documents: inscriptions, Manichean and Buddhist literary works. Mr. Bodrogligeti (alternate years)

**230A-230B-230C. A Historical and Comparative Survey of the Turkic Languages.** Lecture, three hours. Prerequisites: courses 180A-180B-180C. Extinct and living Turkic languages. The history of Turkic: developments in the phonemic, grammatical, and lexical systems from the 8th to the 20th century. Structural analysis of the Turkic languages on a comparative basis. Mr. Bodrogligeti

**235A-235B. Middle Turkic: Karakhanid, Khorazmian, Mamluk-Kipchak, and Old Anatolian.** Lecture, three hours. Prerequisites: courses 180A-180B-180C and consent of instructor. A survey of Middle Turkic documents. Textual and linguistic analysis of Middle Turkic texts from various literary genres. Mr. Bodrogligeti (alternate years)

**240A-240B-240C. Advanced Ottoman.** Lecture, three hours. Prerequisites: courses 210A-210B-210C or equivalent or consent of instructor. Emphasis on the different genres of Ottoman writing (belles lettres as well as various types of state documents) in the elaborate high style of the classical Ottoman period (15th to 19th centuries). Selections are read in manuscript to prepare students to read works in the form in which they are likely to encounter them in their research. Mr. Bodrogligeti, Mr. Jaekel (F,W,Sp)

**250A-250B-250C. Islamic Texts in Chagatay.** Lecture, three hours. Prerequisites: courses 220A-220B-220C or consent of instructor. A philological and linguistic survey of the basic Islamic source material written in the Chagatay literary language. Reading and discussion of Chagatay texts on Islamic topics. Mr. Bodrogligeti

**280A-280B. Seminar in Modern Turkish Literature.** Seminar, two hours. Prerequisites: course 102B or equivalent and consent of instructor. Specific issues and trends in the development of Turkish literature from the middle of the 19th century to the present. Mr. Jaekel

**290A-290B. Seminar in Classical Turkic Literature: Ottoman, Chagatay, and Azeri.** Lecture, two hours. Prerequisites: courses 210A-210B-210C and/or 220A-220B-220C and consent of instructor. Survey of the Islamic literatures of the Turks in the classical period. Readings of Ottoman, Chagatay, and Azeri texts from various literary genres. Discussion of stylistic, prosodic, and linguistic characteristics.

Mr. Bodrogligeti

**596. Directed Individual Study (2 to 8 units).** May be repeated for credit.

**597. Examination Preparation (2 to 8 units).**

**599. Ph.D. Dissertation Research and Preparation (2 to 8 units).**

## Near Eastern Studies (Interdepartmental)

10286 Bunche Hall, 825-1181

### Scope and Objectives

The major is designed primarily for (1) students seeking a general education and desiring a special emphasis in this particular area, (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 a 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 Computer Science 10S and one course from Economics 40, Mathematics 50, Political Science 6, Psychology 41, or Sociology 18, plus one course from Economics 141, Geography 171, Political Science C102, Psychology 142, or Sociology 116. Also required are History 9D and four courses from History 1A, 1B, 1C, Anthropology 5, 6, Economics 1, 2, Geography 3, Political Science 20, 21, 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 Anthropology 110, 176,

Art 102, 104A, 104B, C104C, Economics 110, 111, 112, 190, Geography 187, 188, Political Science 132A, 132B, 164, 165, Sociology 132, 133. This program may be modified in exceptional cases by consent of the adviser.

If you are interested in doing graduate work in this field, see the M.A. and Ph.D. programs offered under "Islamic Studies" earlier in this chapter.

For further information, contact the Von Grunbaum Center for Near Eastern Studies, 10286 Bunche Hall (825-1181) or Professor Michael Morony, History, 6242 Bunche Hall (825-1962).

## Oriental Languages

See East Asian Languages and Cultures

## Philosophy

321 Dodd Hall, 825-4641

#### Professors

Marilyn Adams, Ph.D.  
Robert Merrihew Adams, Ph.D.  
Rogers Albritton, Ph.D.  
Tyler Burge, Ph.D.  
Alonzo Church, Ph.D., *in Residence (Flint Professor of Philosophy)*  
Keith S. Donnellan, Ph.D.  
Philippa Foot, M.A.  
Montgomery Furth, Ph.D.  
Donald Kalish, Ph.D.  
David Kaplan, Ph.D., *Chair*  
D. Anthony Martin, Ph.D.  
Herbert Morris, Ph.D.  
Robert M. Yost, Ph.D.  
Hugh Miller, Ph.D., *Emeritus*  
Wesley Robson, Ph.D., *Emeritus*

#### Associate Professor

Warren S. Quinn, Ph.D.

#### Assistant Professors

Joseph Almog, Ph.D.  
Jean Hampton, Ph.D.  
Richard Healey, Ph.D.  
Alan Nelson, Ph.D.

### Scope and Objectives

In a 1982 survey conducted by the Conference Board of the Associated Research Councils, UCLA's Philosophy Department was judged fifth best in the nation in terms of the quality of its faculty. It offers programs leading to the Bachelor of Arts, Master 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, truth. The undergraduate program in philosophy is not directed at career objectives (although it is traditionally a 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 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, 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:** Philosophy 21, 22, 31, and one other lower division course in philosophy.

#### The Major

**Required:** Twelve upper division or graduate philosophy courses (48 units). Seven of the 12 courses must be distributed among the groups into which the undergraduate and graduate courses are divided, in the following manner: two courses (eight units) in each of three of the groups and one course (four units) 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 Philosophy 199 may be applied toward the major but not toward a 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 at Graduation

On the recommendation of the department faculty, honors in philosophy will be 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 (eight units) in philosophy with an average GPA of 3.5.

## Master of Arts 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 the description under "Ph.D. Degree."

### Foreign Language Requirement

You must demonstrate a reading knowledge of French, German, Latin, or Greek. (When relevant to your research, another language may be substituted with the consent of the department.) This requirement can be satisfied by passing, with a score of at least 500, the Educational Testing Service Graduate School Foreign Language Test in an approved language. Alternatively, it can be satisfied in either of the ways in which the Ph.D. language requirement can be satisfied.

### Course Requirements

You must complete at least nine upper division or graduate courses (36 units), excluding Philosophy 199, of which five courses (20 units) must be in the 200 series.

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 (see the "Ph.D. Degree"). In case of failure, the examination may be repeated.

## Ph.D. 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 and one official transcript from each institution attended should be sent directly to Graduate Admissions; the departmental application, three letters of recommendation (on the official forms), a statement of purpose, a sample of your written work, official scores from the Aptitude Test of the Graduate Record Examination (the Advanced Test in Philosophy is not required), official Test of English as a Foreign Language (TOEFL) scores for applicants whose native tongue is not English, and one official transcript from each institution attended should be sent to the department graduate counselor. Departmental information and applications can be obtained by writing to the Graduate Counselor, Department of Philosophy, UCLA, Los Angeles, CA 90024.

Admission to graduate study in philosophy is not probationary. At the end of your first year of study, the department conducts a review of your work; results are discussed in a meeting between you and your graduate adviser.

### Foreign Language Requirement

You must demonstrate a reading knowledge of French, German, Latin, or Greek. (Another language may be substituted with the consent of the department, if it is used in the doctoral work.) You may satisfy this requirement by having completed, with a grade of C or better, the final course in a two-year sequence of college courses in an approved language. Alternatively, you may satisfy the requirement by passing the department language examination. Completion of the foreign language requirement is not required for admission to the doctoral program but is required by the University for advancement to candidacy.

### Course Requirements

A Ph.D. candidate must complete, with a grade of B or better, the three first-year seminars, plus nine 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 in either the Philosophy or Mathematics Department (approved by your adviser).

*History of Philosophy:* Two graduate-level courses.

*Ethics and Value Theory:* One graduate-level course.

*Metaphysics and Epistemology:* One graduate-level course.

*Electives:* Three upper division or graduate-level courses of your choice.

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 if you have done graduate coursework elsewhere, you may be permitted to substitute previous graduate coursework in exceptional cases.

### Teaching Experience

Before receiving a Ph.D., you are required to spend three quarters as a teaching assistant at UCLA.

### Qualifying Examinations

The master's comprehensive examination consists of four different examinations. One is in logic on the materials covered in Philosophy 31 and 32. Consult the *Manual for Graduate Students in Philosophy* for further information about this examination.

There are also examinations on each of the three first-year seminars. These examinations last two hours and each occurs soon after the completion of the seminar to which it applies. The examination is passed or failed as a whole, which does not necessarily require passing of all four parts.

In the second and third years, you must write two papers, prepared in accordance with a specific format, called "propositions." One must be on a topic in metaphysics or epistemology and the other on a topic in ethics or value theory.

The first proposition should be submitted before the end of the second year; the second, before the end of the third year. Both propositions must be accepted by the department before you can take the University Oral Qualifying Examination. Consult the *Manual for Graduate Students in Philosophy* for further details.

In the third year, you begin a new series of individual studies courses (Philosophy 596) with your dissertation supervisor to develop a well-defined dissertation project. A doctoral committee is selected and the University Oral Qualifying Examination is scheduled. The primary purpose of this examination is to determine whether you will be able to complete the dissertation successfully. The scope of the examination varies according to the definiteness of the dissertation topic and the extent of your preliminary investigations. In case of failure, the doctoral committee makes a recommendation for or against allowing a second oral examination.

### Final Oral Examination

The final oral examination may be waived by the doctoral committee. This determination is usually made at the time of the oral qualifying examination.

### Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Lower Division Courses

**1. The Beginnings of Western Philosophy.** Lecture, three hours; discussion, one hour. The views of Plato, Aristotle, and other thinkers from before Socrates to St. Augustine on such topics as the nature of the physical universe, the nature of knowledge, the concept of God, soul, and body, the foundations of morality, the Greek and Christian ideas of love.

Mr. Albritton, Mr. Furth

**2. Introduction to the Philosophy of Religion.** Lecture, three hours; discussion, one hour. An introductory study of such topics as the nature and grounds of religious belief, the relation between religion and ethics, the nature and existence of God, the problem of evil, and what can be learned from religious experience.

Mr. Adams, Mrs. Adams

**3. Personal and Social Ideals.** Lecture, three hours; discussion, one hour. A study of various conceptions of human perfection and social utopias. Readings are chosen from such authors as Freud, Thomas More, Marx, B.F. Skinner, and Sartre.

**4. Philosophical Analysis of Contemporary Moral Issues.** Lecture, three hours; discussion, one hour. A critical study of principles and arguments advanced in discussion of current moral issues. Possible topics include revolutionary violence, rules of warfare, sexual morality, the right of privacy, punishment, nuclear warfare and deterrence, abortion and mercykilling, experimentation with human subjects, rights of women, the drug culture.

Ms. Hampton, Mr. Quinn



**5A. Philosophy in Literature.** Lecture, three hours; discussion, one hour. A philosophical inquiry into such themes as freedom, responsibility, guilt, love, self-knowledge and self-deception, death, and the meaning of life through examination of great literary works in the Western tradition. Mr. Morris

**5B. Recurring Philosophical Themes in Black Literature.** Lecture, three hours; discussion, one hour. Analysis of some main themes in Afro-American political writings (e.g., assimilation, cultural nationalism, and separatism in the writings of Booker T. Washington, Frederick Douglass, W.E.B. du Bois, and others).

**6. Historical Introduction to Moral and Political Philosophy.** Lecture, three hours; discussion, one hour. A study of some classic works in moral and political philosophy. Questions that may be discussed include What is justice? Why be moral? Why obey the law? Which form of government is best? How much personal freedom should be allowed in society? Ms. Hampton

**7. Introduction to the Philosophy of Mind.** Lecture, three hours; discussion, one hour. An introductory study of philosophical issues about the nature of the mind and its relation to the body, including materialism, functionalism, behaviorism, determinism and free will, the nature of psychological knowledge. Mr. Burge, Mr. Healey

**8. Introduction to the Philosophy of Science.** Lecture, three hours; discussion, one hour. An introduction to philosophical questions about the nature of science, drawing examples from specific scientific theories and controversies that can be understood without much mathematical or technical background. What role do observation and explanation play in building and evaluating scientific theories? How should we view the relation between science and common sense?

**9. Principles of Critical Reasoning.** The course concerns the nature of arguments: how to analyze them and assess the soundness of the reasoning they represent. Common fallacies that often occur in arguments are discussed in light of what counts as a good deductive or inductive inference. Other topics include the use of language in argumentation to arouse emotions as contrasted with conveying thoughts, the 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). Mr. Kaplan

**10. Virtues and Vices.** Lecture, three hours; discussion, one hour. A study of the traditional theory of the virtues and vices, and an inquiry into its truth. Readings in Aristotle, Aquinas, and contemporary authors; discussion of concepts such as courage, wisdom, and justice. Should we accept the traditional list of the virtues and vices, or should it be revised? Mrs. Foot

**21. Skepticism and Rationality.** Lecture, three hours; discussion, one hour. Can we know anything with certainty? How can we justify any of our beliefs? An introduction to the study of these and related questions through the works of some great philosophers of the modern period, such as Descartes, Leibniz, Berkeley, or Hume. Mr. Donnellan, Mr. Furth, Mr. Yost

**22. Introduction to Ethical Theory.** Lecture, three hours; discussion, one hour. Recommended or required for many upper division courses in Group III. A systematic introduction to ethical theory, including discussion of egoism, utilitarianism, justice, responsibility, the meaning of ethical terms, relativism, etc. Mr. Quinn

**31. Logic, First Course.** Lecture, three hours; discussion, one hour. Recommended for students who plan to pursue more advanced studies in logic. The elements of symbolic logic, sentential and quantificational; forms of reasoning and structure of language. Mr. Almog, Mr. Burge, Mr. Kalish, Mr. Kaplan, Mr. Nelson

**32. Logic, Second Course.** Lecture, three hours; discussion, one hour. Prerequisite: course 31 (preferably in the preceding quarter). Symbolic logic: extension of the systematic development of course 31. Quantifiers, identity, definite descriptions. Mr. Almog, Mr. Burge, Mr. Kalish, Mr. Kaplan, Mr. Nelson

## Upper Division Courses

### Group I: History of Philosophy

**100A. History of Greek Philosophy.** Lecture, three hours; discussion, one hour. Prerequisite: one course in philosophy or consent of instructor. Survey of Greek philosophy, with emphasis on the metaphysics and epistemology of Plato and Aristotle. Mr. Albritton, Mr. Furth

**100B. Medieval and Early Modern Philosophy.** Lecture, three hours; discussion, one hour. Prerequisite: one course in philosophy or consent of instructor. Strongly recommended: course 100A. Survey of the development and transformation of Greek metaphysics and epistemology within the context of philosophical theology, and the transition from the medieval to the early modern period. Special emphasis on Augustine, Anselm, Aquinas, and Descartes. Mrs. Adams

**100C. History of Modern Philosophy, 1650-1800.** Lecture, three hours; discussion, one hour. Prerequisite: one course in philosophy. Strongly recommended: course 100B. Courses 100A, 100B, and 100C should be taken in immediately successive quarters if possible. Survey of the development of metaphysics and the theory of knowledge from 1650 to 1800, including Leibniz, Locke, and/or Berkeley, and culminating in Hume and Kant. The views of these (and perhaps other) philosophers of the period on mind and body, causality, the existence of God, skepticism, empiricism, the limits of human knowledge, and the philosophical foundations of modern science are among the topics that may be studied. Mr. Adams

**101A. Plato — Earlier Dialogues.** Lecture, three hours; discussion, one hour. Prerequisite: one course in philosophy or consent of instructor. A study of selected topics in the early and middle dialogues of Plato. Mr. Furth

**101B. Plato — Later Dialogues.** Lecture, three hours; discussion, one hour. Prerequisite: course 101A. A study of selected topics in the middle and later dialogues of Plato. Mr. Furth, Mr. Quinn

**102. Aristotle.** Lecture, three hours; discussion, one hour. Prerequisite: one course in philosophy or consent of instructor. A study of selected works of Aristotle. Mr. Furth

**104. Topics in Islamic Philosophy.** Lecture, three hours; discussion, one hour. Prerequisite: one course in philosophy or consent of instructor. The 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 course in philosophy or consent of instructor. The development of early medieval philosophy within the framework of Judeo-Christian theology and its assimilation and criticism of the Greek philosophical heritage. Focus on the problem of universals, the existence and nature of God, the problem of evil, and the doctrines of the Trinity and atonement. Selected writings from Augustine through Maimonides read in English translation. Mrs. Adams

**106. Later Medieval Philosophy.** Prerequisite: one course in philosophy 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. Mrs. Adams

**107. Topics in Medieval Philosophy.** Prerequisite: one course in philosophy. Recommended: course 105 or 106. The study of the philosophy and theology of one medieval philosopher such as Augustine, Anselm, Abelard, Aquinas, Scotus, or Ockham, or the study of a single area such as logic or theory of knowledge in several medieval philosophers. Topic is announced each quarter. May be repeated for credit by consent of instructor. Mrs. Adams

**C109. Descartes.** Prerequisites: course 21 or two courses in philosophy or consent of instructor. A study of the works of Descartes, with emphasis on the *Meditations*. Such issues as the problem of skepticism, the foundations of knowledge, the existence of God, the relation between mind and body are discussed. Limited to 30 students when concurrently scheduled with course C209. Mr. Burge, Mr. Yost

**C110. Spinoza.** Lecture, three hours; discussion, one hour. Prerequisite: course 21 or consent of instructor. A study of the philosophy of Spinoza. May be concurrently scheduled with course C210, in which case there will be a weekly discussion meeting, plus fewer readings and shorter papers for undergraduates. Limited to 30 students when concurrently scheduled. Mr. Adams

**C111. Leibniz.** Lecture, three hours; discussion, one hour. Prerequisite: course 21 or consent of instructor. A study of the philosophy of Leibniz. May be concurrently scheduled with course C211, in which case there will be a weekly discussion meeting, plus fewer readings and shorter papers for undergraduates. Limited to 30 students when concurrently scheduled. Mr. Adams

**C112. Locke and Berkeley.** Prerequisite: one course in philosophy or consent of instructor. A study of the philosophies of Locke and Berkeley; emphasis may sometimes vary from one figure to the other. May be concurrently scheduled with course C212. Mr. Donnellan

**C114. Hume.** Prerequisite: one course in philosophy or consent of instructor. Selected topics from the metaphysical, epistemological, and ethical writings of Hume. Limited to 40 students when concurrently scheduled with course C214. Mr. Donnellan

**115. Kant.** Lecture, three hours; discussion, one hour. Prerequisite: course 21 or 22 or consent of instructor. A study of Kant's views on related topics in theory of knowledge, ethics, and politics. May be repeated for credit by consent of instructor. Ms. Hampton

**116. 19th-Century Philosophy.** Lecture, three hours; discussion, one hour. Prerequisite: one course in philosophy 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 course in philosophy or consent of instructor. Selected topics in the work of one or more of the following philosophers: Bolzano, Frege, Husserl, Meinong, the early Russell, and Wittgenstein. Mr. Almog, Mr. Burge

### Group II: Logic, Semantics, and Philosophy of Science

**126A. Philosophy of Science.** Lecture, three hours; discussion, one hour. Prerequisite: one course in philosophy or consent of instructor. A historical introduction to the philosophy of science. Several general topics are discussed in the context of actual episodes in the development of the natural sciences. Mr. Healey

**126B. Philosophy of Science.** Lecture, three hours; discussion, one hour. Prerequisite: course 31, 126A, or consent of instructor. An introduction to contemporary philosophy of science, focusing on problems of central importance. Mr. Healey

**126C. Philosophy of Science: Social Sciences.** Lecture, three hours; discussion, one hour. Prerequisites: two courses in philosophy or consent of instructor. A discussion of topics in the philosophy of social science (e.g., the methods of the social sciences in relation to the physical sciences, value-bias in social inquiry, concept formation, theory construction, explanation and prediction, the nature of social laws).

**127A. Philosophy of Language.** Prerequisite: course 31 or consent of instructor. Syntax, semantics, pragmatics. The semantical concept of truth, sense and denotation, synonymy and analyticity, modalities and tenses, indirect discourse, indexical terms, semantical paradoxes. May be repeated for credit by consent of instructor.

Mr. Burge, Mr. Church, Mr. Kaplan

**127B. Philosophy of Language.** Prerequisite: course 32 or consent of instructor. Course 127A is not prerequisite to 127B. Selected topics similar to those considered in course 127A are discussed but at a more advanced and technical level.

Mr. Church, Mr. Kaplan

**128A. Philosophy of Mathematics.** Prerequisites: courses 31, 32, and preferably one additional course in logic. The philosophy of mathematics; logicism of Frege and Russell, arithmetic reduced to logic; ramified type theory and impredicative definition (Russell, Poincaré, the early Weyl).

Mr. Church

**128B. Philosophy of Mathematics.** Prerequisite: course 128A or consent of instructor. Intuitionism of Brouwer, Heyting, and the later Weyl; proof theory of Hilbert.

Mr. Church

**129. Philosophy of Psychology.** Lecture, three hours; discussion, one hour. Prerequisites: one four-unit course in psychology, one course in philosophy. 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 the theory of syntax; behaviorism, functionalism, and alternatives; physiology and psychology.

Mr. Burge

**130. Philosophy of Space and Time.** (Formerly numbered 185.) Lecture, three hours; discussion, one hour. Prerequisites: two courses in philosophy or one course in philosophy and one course in physics, or consent of instructor. Selected philosophical problems concerning the nature of space and time. The philosophical implications of space-time theories, such as those of Newton and Einstein. Topics may include the nature of geometry, conventionalism, absolutist versus relationist views of space and time, philosophical impact of relativity theory.

Mr. Healey

**131. Science and Metaphysics.** Lecture, three hours; discussion, one hour. Prerequisites: two courses in philosophy or consent of instructor. An intensive study of one or two metaphysical topics on which the results of modern science have been thought to bear. Topics may include the nature of causation, the reality and direction of time, time-travel, backwards causation, realism, etc. May be repeated for credit by consent of instructor.

Mr. Healey

**133. Topics in Logic and Semantics.** Prerequisite: course 32. Possible topics include formal theories, definitions, alternative theories of descriptions, many-valued logics, deviant logics.

Mr. Kalish, Mr. Kaplan, Mr. Martin

**134. Introduction to Set Theory.** Prerequisites: course 32 or upper division standing in mathematics and consent of instructor. Introduction to axiomatic set theory; sets, natural numbers, relations, functions, cardinality, infinity.

Mr. Kalish, Mr. Martin

**135. Introduction to Metamathematics.** Prerequisite: course 32. Recommended: course 134 or equivalent. Models, satisfaction, truth, definability; logical truth and logical consequence; consistency and completeness.

Mr. Church, Mr. Kalish, Mr. Kaplan, Mr. Martin

**136. Modal Logic.** Prerequisite: course 32. Recommended: course 133 or 135. The logic of necessity and possibility. Various formulations of the syntax and semantics of such logics. The problem of interpreting quantified modal logic, deontic, and other nonextensional logics.

Mr. Kaplan, Mr. Martin

### Group III: Ethics and Value Theory

**150. Society and Morals.** Lecture, three hours; discussion, one hour. Prerequisite: course 22 or consent of instructor. A critical study of principles and arguments advanced in discussion of current moral and social issues. Topics are similar to those in course 4, but familiarity with some basic philosophical concepts and methods is presupposed. May be repeated for credit by consent of instructor.

**151A-151B. History of Ethics.** Lecture, three hours; discussion, one hour. Prerequisites: two courses in philosophy or consent of instructor. Course 151A is not prerequisite to 151B. **151A.** Selected classics in earlier ethical theories. **151B.** Selected classics in later ethical theories.

Mr. Quinn

**153A. Topics in Ethical Theory: Normative Ethics.** Prerequisite: course 22 or consent of instructor. A study of selected topics in normative ethical theory. Topics may include various conceptions of the criteria of right action, human rights, virtues and vices, principles of culpability and praiseworthiness. May be repeated once for credit by consent of instructor.

Mr. Quinn

**153B. Topics in Ethical Theory: Metaethics.** Prerequisite: course 22 or consent of instructor. A study of selected problems in metaethics ethical theory. Topics may include the analysis of moral language and the justification of moral beliefs. May be repeated once for credit by consent of instructor.

Mrs. Foot, Mr. Quinn

**155. Medical Ethics.** An examination of the philosophical issues raised by problems of medical ethics, such as abortion, euthanasia, and medical experimentation.

Mrs. Foot

**156. Topics in Political Philosophy.** Lecture, three hours; discussion, one hour. Prerequisites: two courses in philosophy or consent of instructor. Recommended: course 22. Analysis of some basic concepts in political theory. May be repeated for credit by consent of instructor.

Ms. Hampton

**157A-157B. History of Political Philosophy.** (Formerly numbered 157.) Lecture, three hours; discussion, one hour. Prerequisites: two courses in philosophy or consent of instructor. May be repeated by 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.

Ms. Hampton

**161. Topics in Aesthetic Theory.** Lecture, three hours; discussion, one hour. Prerequisite: one course in philosophy or consent of instructor. Philosophical theories about the nature and importance of art and art criticism, aesthetic experience, and aesthetic values. May be repeated for credit by consent of instructor.

Mr. Quinn

**166. Introduction to Legal Philosophy.** Prerequisite: one course in philosophy or consent of instructor. An examination, through the study of recent philosophical writings, of such topics as the nature of law, the relationship of law and morals, legal reasoning, punishment, and the obligation to obey the law.

Ms. Hampton, Mr. Morris

### Group IV: Metaphysics and Epistemology

**170. Philosophy of Mind.** Lecture, three hours; discussion, one hour. Prerequisites: two relevant courses in philosophy or consent of instructor. An analysis of various problems concerning the nature of mind and mental phenomena, such as the relation between the mind and the body, and our knowledge of other minds. May be repeated once for credit by consent of instructor.

Mr. Donnellan

**172. Philosophy of Language and Communication.** Prerequisites: two relevant courses in philosophy or linguistics 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.

Mr. Donnellan

**175. Topics in Philosophy of Religion.** Lecture, three hours; discussion, one hour. Prerequisite: course 21 or 22 or consent of instructor. An intensive investigation of one or two topics or works in the philosophy of religion, such as the attributes of God, arguments for or against the existence of God, or the relation between religion and ethics. Topics are announced each quarter. May be repeated for credit by consent of instructor.

Mr. Adams, Mrs. Adams, Mr. Albritton

**177A. Existentialism.** Lecture, three hours; discussion, one hour. Prerequisite: one course in philosophy or consent of instructor. Analysis of the 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 the self, other people, ethics, existential psychoanalysis.

**177B. Historical Studies in Existentialism.** Prerequisite: one course in philosophy or consent of instructor. A study of the central philosophical texts of one of the following: Kierkegaard, Nietzsche, Heidegger, Jaspers, Buber, Sartre, or Camus. The course focuses primarily on explication and interpretation of the texts. May be repeated for credit by consent of instructor.

Mr. Adams

**178. Phenomenology.** Lecture, three hours; discussion, one hour. Prerequisites: two courses in philosophy or consent of instructor. Introduction to the phenomenological method of approaching philosophical problems via the 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.** An examination of the central concepts and arguments in Buddhist philosophy, with emphasis on the school of Mahayana Buddhism. Appropriate parallels are drawn with 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 the physical world, of minds, and of universals; and the answers provided by alternative systems (e.g., phenomenism, materialism, dualism).

Mr. Adams, Mr. Yost

**183. Theory of Knowledge.** Prerequisite: course 21 or consent of instructor. An analysis of the concept of empirical knowledge.

Mr. Yost

**184. Topics in Metaphysics.** Prerequisite: course 21 or consent of instructor. An intensive investigation of one or two topics or works in metaphysics, such as personal identity, the nature of dispositions, possibility and necessity, universals and particulars, causality. Topics are announced each quarter. May be repeated for credit by consent of instructor.

Mr. Adams, Mr. Albritton, Mr. Donnellan, Mr. Healey

**186. Topics in the Theory of Knowledge.** Prerequisite: course 182 or 183 or consent of instructor. An intensive investigation of one or two selected topics or works in the theory of knowledge, such as a priori knowledge, the problem of induction, memory, knowledge as justified true belief. Topics are announced each quarter. May be repeated for credit by consent of instructor. Mr. Albritton, Mr. Yost

**187. Philosophy of Action.** Prerequisites: two courses in philosophy or consent of instructor. A study of various concepts employed in the understanding of human action. Topics may include rational choice, desire, intention, weakness of will, and self-deception. Mr. Albritton, Mr. Burge, Mr. Donnellan

**188. Philosophy of Perception.** Prerequisites: two courses in philosophy or consent of instructor. A critical study of the main philosophical theories of perception and the arguments used to establish them. Mr. Yost

**189. Major Philosophers of the 20th Century.** Prerequisites: two courses in philosophy or consent of instructor. A study of the writings of one or more major modern philosophers (e.g., Russell, Moore, Wittgenstein, Carnap, Quine). May be repeated for credit by consent of instructor. Mr. Albritton, Mr. Burge, Mr. Donnellan

## Special Studies

**190. Third World Political Thought.** Lecture, three hours; discussion, one hour. The political philosophy of various Third World thinkers. Topics may vary from year to year, but typically are chosen from Franz Fanon, Senghor and Césaire's "Negritude," W.E.B. du Bois' Pan-Africanism, Che, and Mao.

**192. Philosophical Analysis of Issues in Women's Liberation.** Prerequisite: one course in philosophy or consent of instructor. A critical study of concepts and principles which arise in the discussion of women's rights and liberation. Topics may include economic and educational equality, preferential treatment, abortion, sex roles, sexual morality, marriage, love, friendship.

**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 the religious life. Mr. Adams

**195. 19th- and 20th-Century Religious Thought.** Lecture, three hours; discussion, one hour. A philosophical approach to Western religious thought of the last two hundred years, through study of selected works by such authors as Kant, Schleiermacher, Kierkegaard, Buber, Camus, and Tillich. Mr. Adams

**196. Undergraduate Seminar in Philosophy.** Lecture, one hour; discussion, three hours. Prerequisite: consent of instructor. Variable topics; consult *Schedule of Classes* or "Department Announcements" for current topic. May be repeated for credit by consent of instructor.

**197. Reading and Writing Philosophy.** Lecture, three hours; discussion, one hour. Prerequisites: two lower or upper division courses in philosophy. The course is designed to help philosophy students who wish to improve their ability to read philosophical texts and to write philosophical essays. Selected texts are used to illustrate problems of reading and writing, and students are required to do and redo many written exercises. Mr. Quinn

**199. Special Studies (2 to 8 units).** Prerequisite: consent of instructor. Eight units may be applied toward the degree requirements, but the course cannot be substituted for a course in one of the four groups on the 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. A study of the later dialogues. Mr. Furth

**202. Aristotle.** Prerequisite: consent of instructor. Analysis of major problems in Aristotle's philosophy based on the reading, exposition, and critical discussion of relevant texts in English translation. Mr. Furth

**203. Seminar: History of Ancient Philosophy.** Prerequisite: consent of instructor. Selected problems and philosophers. May be repeated for credit by consent of instructor. Mr. Furth

**206. Topics in Medieval Philosophy.** Prerequisite: consent of instructor. The study of the philosophy and theology of one or several medieval philosophers such as Augustine, Anselm, Abelard, Aquinas, Scotus, or Ockham or the study of a single area such as logic or theory of knowledge in several medieval philosophers. Topics are announced each quarter. May be repeated for credit by consent of instructor. Mrs. Adams

**207. Seminar: History of Medieval and Renaissance Philosophy.** Prerequisite: consent of instructor. Selected problems and philosophers. May be repeated for credit by consent of instructor. Mrs. Adams

**208. Hobbes.** Prerequisite: consent of instructor. Hobbes' political philosophy, especially the *Leviathan*, with attention to its relevance to contemporary political philosophy. Ms. Hampton

**C209. Descartes.** Prerequisite: consent of instructor. A study of the works of Descartes, with emphasis on the *Meditations*. Such issues as the problem of skepticism, the foundations of knowledge, the existence of God, the relation between mind and body are discussed. May be concurrently scheduled with course C109.

**C210. Spinoza.** Prerequisite: consent of instructor. Selected topics in the philosophy of Spinoza. May be concurrently scheduled with course C110, in which case there will be a two-hour biweekly discussion meeting, plus additional readings and a longer term paper for graduates. Mr. Adams

**C211. Leibniz.** Prerequisite: consent of instructor. Selected topics in the philosophy of Leibniz. May be concurrently scheduled with course C111, in which case there will be a two-hour biweekly discussion meeting, plus additional readings and a longer term paper for graduates. Mr. Adams

**C212. Locke and Berkeley.** Prerequisite: consent of instructor. Selected topics in the philosophy of Locke and Berkeley. May be repeated for credit by consent of instructor. May be concurrently scheduled with course C112. Mr. Donnellan

**C214. Hume.** Prerequisite: consent of instructor. Selected topics in the philosophy of Hume. May be repeated for credit by consent of instructor. May be concurrently scheduled with course C114. Mr. Donnellan

**215. Kant.** Prerequisite: consent of instructor. An 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 by consent of instructor.

**219. Seminar: History of Modern Philosophy.** Prerequisite: consent of instructor. Selected problems and philosophers. May be repeated for credit by consent of instructor.

**220. Seminar: Topics in History of Philosophy.** Seminar, three hours. Prerequisite: consent of instructor. Selected problems and philosophers which may be drawn from different periods. May be repeated for credit by consent of instructor. Mr. Adams, Mrs. Adams

### Group II. Logic, Semantics, and Philosophy of Science

**221A. Topics in Set Theory.** Prerequisite: Mathematics 112A or consent of instructor. Sets, relations, functions, partial and total orderings; well-orderings. Ordinal and cardinal arithmetic, finiteness and infinity, the continuum hypothesis, inaccessible numbers. Formalization of set theory: Zermelo-Fraenkel; von Neumann-Gödel theory. May be repeated for credit by consent of instructor. Mr. Kalish, Mr. Martin

**221B. Non-Neumannian Set Theory.** Prerequisite: course 221A or consent of instructor. Standard (so-called Z-F) set theory relies on a principle of limitations of size as a means of avoiding antinomy. As this principle was first formulated explicitly as an axiom of set theory by von Neumann, set theories in which it fails may appropriately be spoken of as non-Neumannian. Possibilities in regard to non-Neumannian set theories are explored; proposed axiomatizations and relative consistency proofs based on the assumed consistency of Z-F set theory or of Z-F set theory plus a strong axiom of infinity. Mr. Church

**221C. History of Set Theory.** Prerequisite: consent of instructor. The course traces the development of the concept of set and axiomatic set theory by examining selected writings of Frege, Cantor, Russell, Zermelo, Gödel, and several others. The aim is to understand the 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 the rank hierarchy, ramification and predicativity, proper classes and sets as small classes, and the particular Zermelo-Fraenkel axiomatic theory. The main focus is on the actual expressed ideas and views of various influential authors. Mr. Martin

#### 222A-222B-222C. Gödel Theory:

**222A.** Prerequisites: several courses in logic, preferably including course 135. First in a series of three courses leading up to Gödel's incompleteness theorem and Tarski's definition of truth.

**222B.** Prerequisite: course 222A. Second-order arithmetic. Second in series of three courses leading up to Gödel's incompleteness theorem and Tarski's definition of truth.

**222C.** Prerequisite: course 222B. Gödel numbering and Gödel theory. Final course in the Gödel theory series. Mr. Church, Mr. Martin

**224. Philosophy of Physics.** Prerequisite: consent of instructor. Selected philosophical topics related to physical theory, depending on interests and background of the participants, including space and time; observation in quantum mechanics; foundations of statistical mechanics. May be repeated for credit by consent of instructor. Mr. Healey

**225. Probability and Inductive Logic.** Prerequisite: course 134 or Mathematics 112A-112B or consent of instructor.

**226. Topics in Mathematical Logic.** Prerequisite: consent of instructor. Content varies from quarter to quarter. May be repeated for credit by consent of instructor. Mr. Kalish, Mr. Kaplan, Mr. Martin

**227. Philosophy of Social Science.** Prerequisite: consent of instructor. An examination of philosophical problems concerning concepts and methods used in the social sciences. Topics may include the relation between social processes and individual psychology, the logic of explanation in the social sciences, determinism and spontaneity in history, the interpretation of cultures radically different from one's own. Students with a primary interest and advanced preparation in a social science are encouraged to enroll. May be repeated for credit by consent of instructor.

**230. Seminar: Logic.** Prerequisite: consent of instructor. May be repeated for credit by consent of instructor. Mr. Church, Mr. Kaplan, Mr. Martin

**231. Seminar: Intensional Logic.** Prerequisite: consent of instructor. Topics may include the logic of sense and denotation, modal logic, the logic of demonstratives, epistemic logic, the intensional logic of *Principia Mathematica*, possible worlds semantics. May be repeated for credit by consent of instructor.

Mr. Church, Mr. Kaplan, Mr. Martin

**232. Philosophy of Science.** Prerequisite: consent of instructor. Selected topics in the philosophy of science. May be repeated for credit by consent of instructor. Mr. Healey

**233. Seminar: Philosophy of Physics.** Prerequisite: consent of instructor. May be repeated for credit by consent of instructor. Mr. Healey

### Group III. Ethics and Value Theory

**241. Topics in Political Philosophy.** Prerequisites: course 150, 156, or 157 or any two courses in philosophy or consent of instructor. An examination of one or more topics in political philosophy (e.g., justice, democracy, human rights, political obligation, alienation). May be repeated for credit by consent of instructor. Ms. Hampton

**245. Seminar: History of Ethics.** Prerequisite: consent of instructor. Selected topics. May be repeated for credit by consent of instructor.

**246. Seminar: Ethical Theory.** Prerequisite: consent of instructor. Selected topics. Content varies from quarter to quarter. May be repeated for credit by consent of instructor. Mr. Quinn

**247. Seminar: Political Theory.** Prerequisite: consent of instructor. May be repeated for credit by consent of instructor. Ms. Hampton

**248. Problems in Moral Philosophy.** Prerequisite: consent of instructor. An intensive study of some leading current problems in moral philosophy. May be repeated for credit by consent of instructor.

Mrs. Foot

**255. Seminar: Aesthetic Theory.** Prerequisite: consent of instructor. Selected topics. May be repeated for credit by consent of instructor. Mr. Quinn

**M256. Topics in Legal Philosophy.** (Same as Law M217.) Lecture, three hours. Prerequisite: consent of instructor. An examination of topics such as the concept of law, the nature of justice, problems of punishments, legal reasoning, and the obligation to obey the law. May be repeated for credit by consent of instructor. Mr. Morris, Mr. Munzer

**M257. Seminar: Philosophy of Law.** (Same as Law M524.) Lecture, three hours. Prerequisite: consent of instructor. Selected topics in the philosophy of law. May be repeated for credit by consent of instructor.

Mr. Morris

### Group IV. Metaphysics and Epistemology

**271. Seminar: Topics in Metaphysics and Epistemology.** Discussion, three hours. Prerequisite: consent of instructor. May be repeated for credit by consent of instructor. Mr. Albritton

**275. Human Action.** Prerequisites: two upper division philosophy courses or consent of instructor. An examination of theories, concepts, and problems concerning human actions. Topics may include analysis of intentional actions; determinism and freedom; the nature of explanations of intentional actions. May be repeated for credit by consent of instructor.

Mr. Albritton, Mr. Donnellan

**280. 20th-Century Continental Philosophy.** Prerequisite: consent of instructor. Selected topics in 20th-century continental European philosophy. May be repeated for credit by consent of instructor.

**281. Seminar: Philosophy of Mind.** Prerequisite: consent of instructor. May be repeated for credit by consent of instructor. Mr. Burge

**282. Seminar: Metaphysics.** Prerequisite: consent of instructor. May be repeated for credit by consent of instructor.

**283. Seminar: Theory of Knowledge.** Prerequisite: consent of instructor. May be repeated for credit by consent of instructor. Mr. Donnellan

**284. Seminar: Philosophy of Perception.** Prerequisite: consent of instructor. May be repeated for credit by consent of instructor.

**285. Philosophy of Psychoanalysis.** Prerequisite: consent of instructor. An examination of topics such as the nature and validity of psychoanalytic explanations and interpretations, psychoanalysis and language, metapsychological concepts such as the unconscious, the ego, id, superego, defense mechanisms, and the psychoanalytic conception of human nature. Mr. Morris

**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. Mr. Burge

**287. Seminar: Philosophy of Language.** Prerequisite: consent of instructor. May be repeated for credit by consent of instructor.

Mr. Burge, Mr. Donnellan, Mr. Furth

**288. Seminar: Wittgenstein.** Prerequisite: consent of instructor. Mr. Albritton

**289. Seminar: Philosophy of Religion.** Prerequisite: consent of instructor. May be repeated for credit by consent of instructor.

Mr. Adams, Mrs. Adams, Mr. Albritton

### Special Studies

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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 of 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.

**596A-596B. Directed Individual Studies (2 to 8 units).** 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 (course 596B) and letter (course 596A) grading.

**597. Directed Studies for Graduate Examinations (2 to 8 units).** Preparation for M.A. comprehensive examination or Ph.D. oral qualifying examination. 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

3-174 Knudsen Hall, 825-3224

### Professors

Ernest S. Abers, Ph.D.  
Rubin Braunstein, Ph.D.  
Nina Byers, Ph.D.  
Paul M. Chaikin, Ph.D.  
Marvin Chester, Ph.D.  
W. Gilbert Clark, Ph.D.  
John M. Cornwall, Ph.D.  
Ferdinand V. Corroniti, Ph.D.  
John M. Dawson, Ph.D.  
Robert J. Finkelstein, Ph.D.  
A. Theodore Forrester, Ph.D.  
Burton D. Fried, Ph.D.  
Christian Frondsda, Ph.D.  
George Gruner, Ph.D.  
Roy P. Haddock, Ph.D.  
Theodore D. Holstein, Ph.D.  
George J. Igo, Ph.D.  
Charles F. Kennel, Ph.D.  
Leon Knopoff, Ph.D.  
George J. Morales, Ph.D.  
Steven A. Moszkowski, Ph.D.  
Bernard M. K. Nefkens, Ph.D.  
Richard E. Norton, Ph.D.  
Raymond L. Orbach, Ph.D.  
Philip A. Pincus, Ph.D.  
Seth J. Putterman, Ph.D.  
Isadore Rudnick, Ph.D.  
Joseph Rudnick, Ph.D.  
Robert A. Satten, Ph.D.  
Peter E. Schlein, Ph.D.  
Julian S. Schwinger, Ph.D. (*University Professor*)  
William E. Slater, Ph.D.  
Reiner L. Stenzel, Ph.D.  
Donald H. Stork, Ph.D.  
Harold K. Ticho, Ph.D.  
Charles A. Whitten, Jr., Ph.D.  
Alfred Y. Wong, Ph.D.  
Chun Wa Wong, Ph.D.  
Eugene Y. Wong, Ph.D.  
Alfredo Baños, Jr., Dr.Eng., Ph.D., *Emeritus*  
Hans E. Bommel, Ph.D., *Emeritus*  
Joseph Kaplan, Ph.D., Sc.D., L.H.D., *Emeritus*  
Kenneth R. MacKenzie, Ph.D., *Emeritus*  
J. Reginald Richardson, Ph.D., *Emeritus*  
Norman A. Watson, Ph.D., *Emeritus*  
Byron T. Wright, Ph.D., *Emeritus*

### Associate Professors

Claude W. Bernard, Ph.D.  
Charles D. Buchanan, Ph.D.  
Gary A. Williams, Ph.D.

### Assistant Professor

Robert D. Cousins, Ph.D.

### Adjunct Associate Professor

Walter N. Gekelman, Ph.D.

### Adjunct Assistant Professors

Elizabeth H. Bleszynski, Ph.D.  
Marek K. Bleszynski, Ph.D.  
Siu Ah Chin, Ph.D.  
Bethold-Georg Englert, Ph.D.  
Sinan Kaptanoglu, Ph.D.  
Bernard J. Leikind, Ph.D.  
George Mozurkewich, Jr., Ph.D.  
Amarjit S. Soni, Ph.D.

### Adjunct and Visiting Lecturers

Maha Abdalla, Ph.D., *Adjunct*  
Ratindranath Akhoury, Ph.D., *Adjunct*  
S. Merton Burkhard, M.S., *Visiting*

Guy Dimonte, Ph.D., *Adjunct*  
 Arthur H. Huffman, Ph.D., *Adjunct*  
 Jesusa V. Kinderman, Ph.D., *Visiting*  
 Donald Park, Ph.D., *Adjunct*  
 Philip Pritchett, Ph.D., *Adjunct*

## Scope and Objectives

Physics is a basic science with actual and potential applications in many fields. The undergraduate curriculum is broad and general with respect to physics but includes an introduction to theoretical and experimental work in specialized subfields of physics in the senior year. The Physics B.S. degree program is primarily directed at providing a basic foundation for students who intend to go on to graduate school in physics or related fields such as engineering or other physical sciences. However, for many this is a terminal degree preparatory to working as an engineer or technician in industry. The B.A. program in General Physics provides flexibility for students who are interested in fields outside of physics in which a strong background knowledge of physics would be helpful.

The department offers a comprehensive graduate program leading to the Master of Science degree, the Master of Arts in Teaching (M.A.T.), and the Ph.D., which is offered in theoretical or experimental work in a choice of subfields.

## Undergraduate Study

The Department of Physics offers a choice of two undergraduate majors: 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 Physics

This major should be taken if you intend to continue toward the Ph.D. in Physics.

### Preparation for the Major

*Required:* Physics 8A, 8B/8BL, 8C/8CL, 8D/8DL, 8E; Chemistry 11A, 11B/11BL, 11C (11CL is recommended but not required); Mathematics 31A, 31B, 32A, 32B, 33A, 33B. A detailed brochure on the major is available in the Undergraduate Physics Office.

### The Major

*Required:* Physics 105A, 105B, 110A, 110B, 112, 115A, 115B, 131, three courses from the 180 series; three additional upper division lecture courses selected from 108, 114, M122, 123, 124, 126, 132, 140. An upper division course in mathematics may be substituted for Physics 132 by consent of an adviser. A C average is required in the above courses. Reading knowledge of Russian, German, or French is recommended.

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. At least C grades in all mathematics and physics courses taken are required.

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.

## 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, 8B/8BL, 8C/8CL, 8D/8DL, 8E; Chemistry 11A, 11B/11BL, 11C (11CL is recommended but not required); Mathematics 31A, 31B, 32A, 32B, 33A, 33B. A detailed brochure on the major is available in the Undergraduate Physics 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 departments other than physics. A C average in the upper division physics courses is required.

### Teaching Credentials

You may earn credentials for teaching physical sciences and other subjects in California elementary and secondary schools. Completion of the Teacher Credential Program in the Teacher Education Laboratory is required. Consult the Graduate School of Education (201 Moore Hall) for information.

## Graduate Study

The Department of Physics offers opportunities for graduate study leading to the M.S., M.A.T. (Master of Arts in Teaching), and Ph.D. degrees. Special emphasis is given to preparation in the following fields of physics: acoustics/low temperature, elementary particles, intermediate energy and nuclear physics, plasma and astrophysics, solid-state and condensed matter, spectroscopy.

## Admission

You must have an excellent undergraduate record in addition to meeting the University minimum requirements. You are required to take the Graduate Record Examination Advanced Test in Physics and to submit three letters of recommendation. Foreign applicants who are applying for financial support (fellowships, teaching assistantships, 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.

Application materials may be obtained by writing to the Graduate Office, Department of Physics, 3-145G Knudsen Hall, UCLA, Los Angeles, CA 90024.

## Master of Science Degree

### Major Fields or Subdisciplines

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. The Physics Department requires that a minimum of six of the nine be graduate courses in physics of which you must pass the five fundamental (core) courses: Physics 210A, 210B, 215A, 221A, 221B. To complete the minimum six graduate courses you are required to pass one of the following courses with a B or better: 220, 221C, 231A. The remaining three courses (to complete the nine courses for the M.S. degree) may be satisfied by upper division or graduate courses, not necessarily in physics, which are acceptable to the Physics Department. No more than two of the three courses may be from Physics 596 or seminar courses. Only eight units of 500-series courses may be applied toward the total course requirement for the M.S. degree (courses 597 and 598 may not be applied).

### Comprehensive Examination Plan

A passing grade on a written comprehensive examination is required. It is recommended that the examination be taken during the first year by UCLA graduates in physics and must be taken no later than the fourth quarter in residence by other students. This examination is given twice a year.

Although the department operates under the comprehensive examination plan rather than the thesis plan, arrangements generally can be made to write a master's thesis, provided you have a particularly interesting research problem and a professor is willing to undertake the guidance of your work. You must petition the departmental committee of graduate advisers for permission to pursue the thesis plan. The comprehensive examination requirement is waived if the petition is approved.

## Master of Arts in Teaching

### Major Fields or Subdisciplines

It is not required to designate an area of specialization for the M.A.T. degree.

### Course Requirements

This degree leads to qualification for teaching credentials at the secondary school or junior college level. Five graduate courses, five professional (300 series) courses, and 12½ total courses are required.

(1) The five graduate physics courses must include Physics 370 and four courses from 210A, 210B, 215A, 221A, 221B.

(2) Also required are the courses necessary for completion of the preliminary State of California Single Subject Teaching Credential, K-12: Education 100A, 100B, 112, 312, 315A-315B, 330B, 330C, Public Health 187.

Courses in the 500 series may not be applied toward the M.A.T. degree.

### Teaching Experience

Teaching experience is required insofar as the required education courses are concerned (supervised teaching at the secondary or junior college level).

### Comprehensive Examination Plan

A passing grade on a written comprehensive examination is required. M.A.T. candidates who fail to qualify at the master's level of achievement may repeat the examination a second time. Permission to repeat it a third time may be granted only under exceptional circumstances.

### Ph.D. Degree

#### Major Fields or Subdisciplines

Ph.D. degrees are granted in the following fields of specialization: elementary particles, intermediate energy and nuclear physics, low temperature/acoustics, plasma and astrophysics, solid-state and condensed matter, and spectroscopy.

#### Course Requirements

Before the formation of a doctoral committee, you must satisfy the core course requirements by taking Physics 210A, 210B, 215A, 221A, 221B. Course examinations are graded on both a letter and an S/U basis. All students seeking candidacy for the Ph.D. degree must pass with a grade of S the final examination in four of the five courses. In case of failure, you may petition to repeat the examination in question. The five examinations should be completed by the fifth quarter in residence. In addition to the five required courses, you must fulfill a breadth requirement by passing one of the following courses with a B or better: Physics 220, 221C, 231A (course 132 is the mathematics prerequisite to graduate classes; if

you have not taken this course or its equivalent as an undergraduate, you must do so at the beginning of your graduate career).

### Qualifying Examinations

All departmental graduate students (master's and Ph.D.) take the same examination, which is graded as follows: (1) pass at the Ph.D. level of achievement, (2) pass at the master's level of achievement, or (3) fail.

All students in the Ph.D. program must pass the examination at the Ph.D. level of achievement. In case of failure, you may take the examination a second time. Permission to take it a third time may be granted only under exceptional circumstances.

You may arrange for the comprehensive oral examination (departmental field oral) only after completing the core course requirements and passing the comprehensive written examination at the Ph.D. level. The departmental oral may encompass material covered in all graduate courses but with special emphasis on your field of specialization. The examination, if failed, may be repeated on the recommendation of your committee to the graduate affairs officer. All students are expected to complete the examination by the eighth quarter in residence.

The doctoral committee conducts the University Oral Qualifying Examination, which may include (1) material in your field of specialization, (2) related material that members of the committee from other departments may wish to ask, and (3) discussion of the proposed dissertation problem. Committee members will guide, read, approve, and certify the dissertation. At least two members from the Physics Department and at least one outside member must act in this capacity. A decision is also made at this time as to whether a final oral examination will be required.

When a satisfactory report on the completion of the written and oral qualifying examinations has been submitted, you will be eligible to be formally advanced to candidacy for the Ph.D.

### Final Oral Examination

This examination ordinarily will be a discussion of your original work, including your dissertation and other related matters to be determined by the committee. It may be, if the committee so desires, a survey or comprehensive examination.

### Lower Division Courses

Physics 1Q is intended for entering freshman physics majors and will normally be taken in the first quarter of residence. Although it is not a required course or a part of or prerequisite to any general physics sequence of courses, its purpose is to indicate the nature of current research problems in physics.

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 courses 8A through 8E by taking the final examination with a class at the end of any quarter. These will serve as placement examinations. You should discuss such possibilities with your departmental adviser.

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 prerequisite for admission to this sequence.

Physics 10 is a one-quarter, non-laboratory course which surveys the whole field of physics. Any two or more courses from Physics 10, 3A, 6A, and 8A will be limited to six units credit.

**1Q. Contemporary Physics (2 units).** Limited to physics majors. A review of current problems in physics, with emphasis on those being studied in the research laboratories at UCLA. The significance of the problems and their historical context. (F)

**3A. General Physics: Mechanics of Solids and Fluids.** Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisites: three years of high school mathematics including trigonometry or two years of high school mathematics and a 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. The fundamentals of classical mechanics: Newton's laws; conservation of momentum, angular momentum, energy; Kepler's laws; dynamics of systems of particles; fluid mechanics. (F,W)

**3B. General Physics: Heat, Sound, Electricity and Magnetism.** Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisite: course 3A or equivalent. Temperature, heat, and the laws of thermodynamics. Introduction to wave motion, resonance. Sound and acoustics. Electric and magnetic fields. Electric power. Elements of DC and AC circuits. (W,Sp)

**3C. General Physics: Light, Relativity, and Modern Physics.** Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisite: course 3B or equivalent. Light, optical instruments. Introduction to relativity. The electron and the atom. Matter waves. Nuclear and particle physics. (F,Sp)

**6A. Physics for Life Science Majors: Mechanics and Wave Motion.** Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisites: Mathematics 3A, 3B, and 3C (may be taken concurrently), or equivalent. (F,W)

**6B. Physics for Life Science Majors: Electricity and Magnetism.** Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisite: course 6A. (W,Sp)



**6C. Physics for Life Science Majors: Light and Modern Physics.** Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisite: course 6B. (F,Sp)

**8A. Physics for Scientists and Engineers: Mechanics.** Lecture/demonstration, four hours; discussion, one hour. Prerequisite: Mathematics 31A or equivalent. Recommended: high school physics and chemistry. Corequisites: course 8AL, Mathematics 31B. Motion, Newton's laws, work, energy, linear and angular momentum, rotation, equilibrium, gravitation. (F,W,Sp)

**8AL. Physics Laboratory for Scientists and Engineers: Mechanics (1 unit).** Lecture, one hour; laboratory, 90 minutes. Corequisite: course 8A or consent of instructor. (F,W,Sp)

**8B. Physics for Scientists and Engineers: Waves, Sound, Heat.** Lecture/demonstration, three hours; discussion, one hour. Prerequisites: course 8A, Mathematics 31B. Corequisites: course 8BL, Mathematics 32A (or equivalent). Harmonic oscillators, standing and traveling waves, fluid dynamics, sound, kinetic theory of gases, laws of thermodynamics. (F,W,Sp)

**8BL. Physics Laboratory for Scientists and Engineers: Waves, Sound, Heat (1 unit).** Lecture, one hour; laboratory, 90 minutes. Corequisite: course 8B or consent of instructor. (F,W,Sp)

**8BH. General Physics: Vibration, Wave Motion, Sound, Fluids, Heat, and Kinetic Theory (Honors).** Lecture/demonstration, three hours; discussion, one hour. Prerequisites: course 8A with a grade of A or recommendation of 8A instructor, Mathematics 31B (or preferably 31BH) completed, and 32A (or preferably 32AH) concurrent, or equivalent. The course covers the same material as course 8B but in greater depth. (Sp)

**8HB. Physics for Scientists and Engineers (Honors) (5 units).** Lecture, four hours; discussion/laboratory, two and one-half hours. Prerequisite: same as for the Physics 8 and 8L series. Limited to the top 20 students (determined by previous Physics 8 grades) by consent of instructor. Intended for outstanding students with a deep interest in physics. Honor students participate in the lectures and examinations of the regular Physics 8 series. Discussions and laboratories are given by an honors instructor who discusses challenging problems in depth. (F,W,Sp)

**8C. Physics for Scientists and Engineers: Electricity and Magnetism.** Lecture/demonstration, three hours; discussion, one hour. Prerequisites: course 8B, Mathematics 32A. Corequisites: course 8CL, Mathematics 32B. Electrostatics: electric field and potential, capacitors and dielectrics. Currents, DC circuits, transients in RC circuits. Magnetism: magnetic fields and forces, Ampere's law, Faraday's law, Maxwell's equations in integral form. Inductance and transients in RL circuits. (F,W,Sp)

**8CL. Physics Laboratory for Scientists and Engineers: Electricity and Magnetism (1 unit).** Lecture, one hour; laboratory, 90 minutes. Corequisite: course 8C or consent of instructor. (F,W,Sp)

**8CH. General Physics: Electricity and Magnetism (Honors).** Lecture/demonstration, three hours; discussion, one hour. Prerequisites: course 8BH or 8B with a grade of A or recommendation of 8B instructor, Mathematics 32A (or preferably 32AH) completed and 32B (or preferably 32BH) concurrent, or consent of instructor. The course covers the same material as course 8C but in greater depth. (F)

**8HC. Physics for Scientists and Engineers (Honors) (5 units).** Lecture, four hours; discussion/laboratory, two and one-half hours. Prerequisite: same as for the Physics 8 and 8L series. Limited to the top 20 students (determined by previous Physics 8 grades) by consent of instructor. Intended for outstanding students with a deep interest in physics. Honor students participate in the lectures and examinations of the regular Physics 8 series. Discussions and laboratories are given by an honors instructor who discusses challenging problems in depth. (F,W,Sp)

**8D. Physics for Scientists and Engineers: Electromagnetic Waves, Light, and Relativity.** Lecture/demonstration, three hours; discussion, one hour. Prerequisites: course 8C, Mathematics 32B. Corequisites: course 8DL, Mathematics 33A. AC circuits, resonance. Maxwell's equations in differential form. Electromagnetic waves. Light: reflection, refraction, interference, diffraction, polarization. The special theory of relativity. (F,W,Sp)

**8DL. Physics Laboratory for Scientists and Engineers: Electromagnetic Waves, Light, and Relativity (1 unit).** Lecture, one hour; laboratory, 90 minutes. Corequisite: course 8D or consent of instructor. (F,W,Sp)

**8DH. General Physics: Electromagnetic Waves, Light, and Relativity (Honors).** Lecture/demonstration, three hours; discussion, one hour. Prerequisites: course 8CH or 8C with a grade of A or recommendation of 8C instructor, Mathematics 32B (or preferably 32BH) completed and 33A (or preferably 33AH) concurrent, or consent of instructor. The course covers the same material as course 8D but in greater depth. (W)

**8HD. Physics for Scientists and Engineers (Honors) (5 units).** Lecture, four hours; discussion/laboratory, two and one-half hours. Prerequisite: same as for the Physics 8 and 8L series. Limited to the top 20 students (determined by previous Physics 8 grades) by consent of instructor. Intended for outstanding students with a deep interest in physics. Honor students participate in the lectures and examinations of the regular Physics 8 series. Discussions and laboratories are given by an honors instructor who discusses challenging problems in depth. (F,W,Sp)

**8E. Physics for Scientists and Engineers: Modern Physics.** Lecture/demonstration, three hours; discussion, one hour; laboratory, two hours. Prerequisites: course 8D, Mathematics 33A. Corequisite: Mathematics 33B or equivalent. Wave-particle duality, quantum theory, Schrodinger equation, hydrogen atom, exclusion principle. (W,Sp)

**10. Physics.** Lecture/demonstration, three hours; quiz/discussion, one hour. Special mathematical preparation beyond that necessary for admission to the University in freshman standing is not required. The course satisfies in part the Letters and Science requirements in the physical sciences for nonphysical science majors. Topics include planetary motion, Newton's laws, gravitation, electricity and magnetism, wave motion, light, sound, and heat, relativity, quantum mechanics, atoms, and subatomic particles. As time permits, the development of physical ideas are placed in cultural and historical perspective. (W,Sp)

**11. Modern Physics for Nonscience Majors.** Lecture/demonstration, three hours; quiz/discussion, one hour. Prerequisite: course 10. Topics include the concept of energy, quantum theory, nuclear physics, relativity.

**14A-14B. Mechanics: Preparatory Courses.** Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 3A, 3B, and 3C, or 31A. Corequisite for course 14A: Mathematics 31B. Introductory courses in mechanics that satisfy the physics prerequisite for course 6B or 8B. Primarily intended for students who are inadequately prepared for course 6A or 8A, the courses include lectures, demonstrations, discussions, laboratory, and small group problem solving sessions. (W,Sp)

## Upper Division Courses

Prerequisites for all upper division courses: Physics 8A through 8E, Mathematics 31A, 31B, 32A, 32B, 33A, and (except for Physics 105A, 116) 33B, or consent of instructor. Students must complete one quarter of upper division physics before enrolling in the 180 laboratory series.

**105A. Analytic Mechanics.** Newtonian mechanics and conservation laws, gravitational potentials, calculus of variations, Lagrangian and Hamiltonian mechanics, central force motion, linear oscillations.

**105B. Analytic Mechanics.** Prerequisite: course 105A. Relativity with four vectors, non-inertial 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's law and Maxwell's equations. Propagation of electromagnetic radiation. Multiple radiation and radiation from an accelerated charge. The special theory of relativity.

**112. Thermodynamics.** (Formerly numbered 112A.) Lecture, three hours; discussion, one hour. Fundamentals of thermodynamics, including the first, second, and third laws. The statistical mechanical point of view and its relation to thermodynamics. Some simple applications.

**114. Mechanics of Wave Motion and Sound.** 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 105B (may be taken concurrently), 131. The classical background, basic ideas, and methods of quantum mechanics.

**115B. Elementary Quantum Mechanics.** Prerequisite: course 115A. Development of the methods and concepts of quantum mechanics.

**115C. Elementary Quantum Mechanics.** Prerequisite: course 115B. Further development in the methods and concepts of quantum mechanics.

**116. Electronics.** Lecture, three hours; laboratory, three hours. Alternating current circuits, vacuum tube characteristics and parameters, transistor characteristics and parameters, amplifiers, oscillators, nonlinear tube and transistor circuits.

**M122. Plasma Physics.** (Same as Electrical Engineering M118.) Prerequisite: course 110A or Electrical Engineering 100B. 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. Illustrative laboratory experiments are discussed.

**123. Atomic Structure.** Prerequisite: course 115B. The theory of atomic structure. Interaction of radiation with matter.

**124. Nuclear Physics.** Lecture, three hours; discussion, one hour. Prerequisite: course 115B. Nuclear charge, mass, radius, spin, and moments; nuclear models; nuclear forces; alpha, beta, and gamma emission.

**126. Elementary Particle Physics.** Prerequisite: course 115B. Experimental determination of the properties of elementary particle states. Relativistic kinematics and phase space; angular momentum and isotopic spin formalism; elastic and inelastic scattering; invariance principles and conservation laws; strong, electromagnetic, and weak interactions. Survey of important experiments.

**131. Mathematical Methods of Physics.** (Formerly numbered 131A.) 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.** (Formerly numbered 131B.) Lecture, three hours; discussion, one hour. Prerequisite: course 131. Green's functions and boundary value problems, complex variables, and topics selected from tensors, Laplace transforms, probability theory, approximation techniques.

**140. Introduction to Solid-State Physics.** Prerequisite: course 115B or equivalent. Introduction to the basic theoretical concepts of solid-state physics with applications. Crystal symmetry; cohesive energy; diffraction of electron, neutron, and electromagnetic waves in a lattice; the reciprocal lattice; phonons and their interactions; free electron theory of metals; energy bands.

**180A. Nuclear Physics Laboratory.**

**180B. Physical Optics and Spectroscopy Laboratory.**

**180C. Solid-State Physics Laboratory.**

**180D. Acoustics Laboratory.**

**180E. Plasma Physics Laboratory.**

**180F. Elementary Particle Physics Laboratory.**

**185. Foundations of Physics.** Prerequisite: senior standing in physics or consent of instructor. The 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 twelve units may be applied toward the Physics B.S. degree requirements.

## Graduate Courses

**210A. Electromagnetic Theory.** Boundary value problems in electrostatics and magnetostatics. Multipole expansions; dielectrics and macroscopic media. Maxwell's equations and conservation laws. Wave guides and resonators; simple radiating systems.

**210B. Electromagnetic Theory.** The electromagnetic potentials and the 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.** The  $n-j$  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; the Coulomb gas; the 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. Quantum Mechanics.** Lecture, three hours. Fundamentals of quantum mechanics, operators and state vectors, equations of motion.

**221B. Quantum Mechanics.** Lecture, three hours. Prerequisite: course 221A. Rotations and other symmetry operations, perturbation theory.

**221C. Quantum Mechanics.** Lecture, three hours. 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, the scattering matrix, the density matrix and polarization, the properties of pions, the one pion exchange potential, phase shift analysis.

**225A-225B. Advanced Nuclear Physics.** Prerequisites: courses 221A, 221B. Normally preceded by course 224. An advanced course in the structure of complex nuclei, nuclear models, scattering and reactions.

**226A-226B-226C. Elementary Particle Physics (6 units each).** (Formerly numbered 226A-226B.) 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  $\gamma$ , quark theory of hadrons and quantum chromodynamics.

**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.** Students with credit for Mathematics 266A will not receive credit for this course. Linear operators, review of functions of a complex variable, integral transforms, partial differential equations.

**231B. Methods of Mathematical Physics.** Students with credit for Mathematics 266B will not receive credit for this course. Ordinary differential equations, partial differential equations, and integral equations. Calculus of variations.

**231C. Methods of Mathematical Physics.** Students with credit for Mathematics 266C will not receive credit for this course. Perturbation theory. Singular integral equations. Numerical methods.

**232A-232B. Relativity.** The 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 the 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.

**260. Seminar: Problems in Plasma Physics.**

**261. Seminar in Special Problems in Theoretical Physics.**

**262. Seminar in Physics of the Solid State.**

**264. Seminar in Advanced Physical Acoustics.**

**266. Seminar in Propagation of Waves in Fluids.**

**268. Seminar in Spectroscopy.**

**269A. Seminar in Nuclear Physics.**

**269B. Seminar in Elementary Particle Physics.**

**284. Advanced Laboratory in Acoustics and Cryogenics.** Selected advanced experiments in acoustics and cryogenics designed to train the student in the techniques and instrumentation used in acoustic research and low temperature physics.

**290. Research Tutorial in Plasma Physics (2 or 4 units).** Seminars and discussion by staff and students directed toward problems of current research interest in the plasma physics group, both experimental and theoretical. Each graduate student doing research in this field is required to take three quarters of this course, ordinarily during the second or third year. May be repeated for credit.

**291. Research Tutorial in Elementary Particle Theory (2 or 4 units).** Prerequisites: courses 226A, 230A, 230B. Seminars and discussion by staff, postdoctoral fellows, and graduate students. Each graduate student doing research in this field is required to take this course, ordinarily during the second or third year. May be repeated for credit.

**292. Research Tutorial in Spectroscopy, Low Temperature, and Solid-State Physics (2 or 4 units).** Seminars and discussion by staff and students on problems of current research interest in spectroscopy, low temperature, and solid-state physics. Each graduate student doing research in these fields is required to take this course, ordinarily during the second or third year. May be repeated for credit.

**295. Research Tutorial in Solid Earth Physics (2 or 4 units).** Seminars and discussion in solid earth physics. Each graduate student doing research in this field is required to take this course (or course 292 if appropriate), ordinarily in the second or third year. May be repeated for credit.

**298. Research Tutorial in Elementary Particle Physics (2 or 4 units).** Limited to six students. Seminars and discussion by staff and students on current problems in elementary particle physics. Each graduate student doing research in this field is required to take this course, ordinarily during the second or third year. May be repeated for credit.

**299. Research Tutorial in Nuclear Physics (2 or 4 units).** Seminars and discussion in nuclear physics by staff and students, in both experiment and theory. Each graduate student doing research in this field is required to take this course, ordinarily during the second or third year. May be repeated for credit.

**370. The Teaching of Physics.** Prerequisite: consent of instructor. A study of the physics laboratory experiments and demonstrations available today for secondary school and community college physics courses. The course is part of the Master of Arts in Teaching (M.A.T.) program but is open to other interested students.

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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 of College Physics (2 units).** Lecture/discussion (five or more one-hour meetings during the quarter, plus intensive training week at the beginning of Fall Quarter). Required of all new teaching assistants. A special course for teaching assistants designed to deal with the problems and techniques of teaching college physics. The 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 Examination (2 to 8 units).** May be repeated. S/U grading.

**598. Master's Thesis Research and Writing (2 to 8 units).** May be repeated. S/U or letter grading.

**599. Ph.D. Research and Writing (8 to 12 units).**

David O. Sears, Ph.D.  
Richard Sisson, Ph.D., *Chair*  
Richard L. Sklar, Ph.D.  
Stephen L. Spiegel, Ph.D.  
David O. Wilkinson, Ph.D.  
David A. Wilson, Ph.D.  
E. Victor Wolfenstein, Ph.D.  
Charles E. Young, Ph.D.  
Ciro Zoppo, Ph.D.  
Winston W. Crouch, Ph.D., *Emeritus*  
Ernest A. Engelbert, M.P.A., Ph.D., *Emeritus*  
David G. Farrelly, Ph.D., *Emeritus*  
J.A.C. Grant, Ph.D., LL.D., *Emeritus*  
Foster H. Sherwood, Ph.D., LL.D., *Emeritus*  
H. Arthur Steiner, Ph.D., *Emeritus*

#### Associate Professors

L. Blair Campbell, Ph.D.  
Pierre-Michel Fontaine, Ph.D., *Acting*  
Douglas S. Hobbs, Ph.D.  
Karen J. Orren, Ph.D.  
John R. Petrock, Ph.D.  
Raymond A. Rocco, Ph.D.  
Stephen L. Skowronek, Ph.D.  
Duane E. Smith, Ph.D.  
Leo M. Snowiss, Ph.D.  
Arthur A. Stein, Ph.D.

#### Assistant Professors

Thad A. Brown, Ph.D.  
Jeffrey A. Frieden, M.A., *Acting*  
P. Brett Hammond, Ph.D.  
David A. Lake, M.A., *Acting*  
Robert C. Welsh, Ph.D.

#### Adjunct Professor

James G. Fisk, B.S.

## Scope and Objectives

The undergraduate program in political science aims to provide an 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. This 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

### Pre-Political Science Major

All students intending to major in political science who enter the University as freshmen in Fall Quarter 1984 and after or as upper division transfers in Fall Quarter 1986 and after must enroll as pre-political science majors. After completion of "Preparation for the Major" courses, you must 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, 40, 50, 70, and 80, including at least two courses from 10, 20, and 50 (but no more than two from 40, 70, and 80).

The general education requirement for political science majors is 14 courses. If you scored less than 600 on the Quantitative SAT (or 550 on CEEB Math), the quantitative reasoning requirement must be met by successfully completing one of the following: Political Science 6, Economics 40, Mathematics 50, Psychology 41, Public Health 100B or 100C or 100D. The two-course social analysis requirement will not be waived and must be met by two courses outside the department.

**Note:** You must complete all premajor courses with a 2.0 grade-point average and must meet all general education requirements by the time you attain 135 units. Admission to the major will be granted only on successful completion of all lower division requirements.

## The Major

**Required:** Ten upper division courses (40 units) selected from Political Science C102 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 160), economics, geography, history, management (only 150, 190), psychology (except 115, 116, 117), sociology. These courses must be concentrated in two departments, and all 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 six fields: (I) political theory, (II) international relations, (III) politics, (IV) comparative government, (V) public law, and (VI) public administration and local government.

In fulfilling the requirement of ten upper division political science courses, you must satisfy the following:

- (1) A **concentration** in one field by completing at least four upper division courses in that field. It is recommended that one of these courses be an undergraduate seminar (C197A-C197C; see field concentration requirements below).
- (2) A **distribution** of two courses in each of two other fields (four courses).
- (3) Two additional elective courses in political science to comprise the total of ten.

Continuing students are expected to follow the 1983-84 *UCLA General Catalog* requirements. If you must meet the Political Science 110 requirement, you may do so by successfully completing course 10.

## Political Science

4289 Bunche Hall, 825-4331

### Professors

Richard E. Ashcraft, Ph.D.  
Hans H. Baerwald, Ph.D.  
Richard D. Baum, Ph.D.  
Irving Bernstein, Ph.D.  
David T. Cattell, Ph.D.  
James S. Coleman, Ph.D.  
Mattei Dogan, Docteur ès Lettres  
Leonard Freedman, Ph.D.  
Robert C. Fried, Ph.D.  
Robert S. Gerstein, LL.B., Ph.D.  
Edward Gonzalez, Ph.D.  
Marvin Hoffenberg, M.A., *in Residence*  
Michael Intriligator, Ph.D.  
Roman Kolkowicz, Ph.D.  
Andrzej Korbonski, Ph.D.  
Michael F. Lofchie, Ph.D.  
Dwayne Marvick, Ph.D.  
Charles R. Nixon, Ph.D.  
David C. Rapoport, Ph.D.  
John C. Ries, Ph.D.  
Ronald L. Rogowski, Ph.D.

**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 field concentration are as follows:

(I) *Political Theory:* Any four courses in Field I.

(II) *International Relations:* Any four upper division courses in Field II. Four units from Political Science 175A-175B may be applied as one of the four courses in Field II. Only one of the defense studies courses—138A, 138B, 138C—may be applied toward the field concentration requirement.

(III) *Politics:* Any four courses in Field III. Course 182A may also be applied toward concentration in this field.

(IV) *Comparative Government:* Course 168 and any three additional courses in Field IV. Course 115, 188A, or 188B—but no more than one of them—may also be applied toward concentration in this field.

(V) *Public Law:* Course 170 and any three additional courses in Field V. Course 70 is prerequisite to 172A and 172B.

(VI) *Public Administration and Local Government:* Any four courses in Field VI. Course 138C, 173, or 174—but no more than one of them—may also be applied toward concentration in this field.

**Note:** No course may be applied toward both concentration and distribution requirements.

Also, courses 119, 139, 149, M169, 179, and 189 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 quarter 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

Students wishing to qualify for graduation with departmental honors must maintain a 3.5 grade-point average in upper division political science courses and complete the following:

(1) Political Science 195A-195B-195C, in which a senior thesis is written; (2) eight upper division courses (excluding courses 119, 139, 149, M169, 179, and 189) distributed as follows: four courses in one field and four addi-

tional 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.

## M.A. and Ph.D. Degrees

The aim of the graduate program is to train scholars in the discipline of political science, while also providing the additional professional skills relevant to their particular career objectives. The department ordinarily accepts only students who are seeking the Ph.D. degree (a master's degree may be earned as part of the process of completing the requirements for the Ph.D.).

The program, unless you choose the M.A. thesis option, consists of three fields of study (two major fields in political science and a minor field which may be outside the department). You will take coursework in these fields during the first two years of the program, at the end of which you will take qualifying examinations in your two major fields. If you qualify for the Ph.D. on the basis of these examinations, you will take an examination the following year in your minor field and complete the course requirements for the Ph.D. You will also prepare a research design for your dissertation and, finally, complete the dissertation.

You are eligible to receive a master's degree when you qualify for the Ph.D. If you do not qualify for the Ph.D., you will still receive a master's degree if your qualifying examinations merit it and you have completed the coursework required for the first two years. If you choose the thesis program, you will not have a minor field and will write a thesis at the end of two years instead of taking examinations. You will receive a master's degree after successfully completing the program.

## Admission

In addition to University minimum requirements, the department requires three letters of recommendation, scores of the General Test of the Graduate Record Examination, and a sample of your analytical writing skills (e.g., senior or M.A. thesis, term paper). Applicants are selected on the basis of perceived promise irrespective of their preference for the M.A. or Ph.D. degree. Prospective students may write for departmental brochures to the Graduate Studies Office, Department of Political Science, UCLA, Los Angeles, CA 90024. The department does not have an application form in addition to the one used by Graduate Admissions. The deadline for receipt of all application materials is December 31 prior to the Fall Quarter in which you plan to register.

## Major Fields

Six fields of study are offered to graduate students in the department: political theory; international relations; politics; comparative government; public law; and public administration and local government.

## Foreign Language or Research Methodology Requirement

There is no foreign language requirement for the M.A. degree.

For the Ph.D., you must fulfill one of the following requirements:

(1) Foreign language proficiency may be demonstrated by passing the Educational Testing Service examination with a minimum score of 550. In languages for which no ETS examination is given, you must take a department examination to test your proficiency at a level comparable to an ETS score of 550. You may also satisfy the requirement by having completed, with a grade of B or better, the final course in a two-year sequence of college courses in a foreign language.

(2) Research methodology proficiency may be demonstrated by completing three courses with a grade of B or better. Two of the courses are to be a sequence in elementary statistics, plus Political Science C203C. Acceptable statistics courses include Mathematics 50 and Sociology 210A-210B. More advanced classes in mathematics or statistics may be substituted for these statistics courses.

You are required to pass the foreign language or methodology requirement before you can be advanced to candidacy for the Ph.D., but you may pass the requirement after the University Oral Qualifying Examination.

## Course Requirements

During the first two years of the program you are required to take a minimum of 12 substantive courses (exclusive of Political Science 597 and 598), of which eight must be in two major fields in political science. The 12 courses must be distributed as follows during the two years of study:

(1) First-year students will take Political Science 200 normally in the Fall Quarter of their first year.

(2) A minimum of four graduate courses is required in each of your two major fields. Each field will designate the core courses needed to fulfill a major in that field. Where approved by a field, you may take one designated Concepts and Methods (CAM) course (Political Science 203A-203B-C203C or C204) to satisfy one of the four course requirements in either of the two major fields, but not in both fields.

(3) Unless you select the thesis plan, you must take a minimum of two courses in a minor field, of which at least one must be at the graduate level. The minor field may be taken in one of the six fields of political science, in the CAM series offered by the department, or in an outside discipline, area studies program, or professional school. If the minor is outside the Political Science Department, your plan of study must be approved by the graduate studies committee.

(4) If you select the M.A. thesis plan, you must take two courses related to your thesis in lieu of the minor field requirements.

(5) All students must take an additional graduate course as an elective, selected from within or outside the department. If your minor is taken outside the department, the elective must be in one of the six fields, excluding the two major fields. It may not be course 596.

(6) A maximum of three 596 courses may be applied toward the requirement of 12 substantive courses, but no more than two 596 courses may be taken in any of the two major fields.

**Transfer Students:** With the approval of the relevant field committee and the Dean of the Graduate Division, a maximum of two graduate courses taken at another institution may be applied toward the 12-course requirement in the first two years of the program. If the courses were taken at another UC campus, the number is increased to four, and if you already have an M.A. in Political Science, to six. Although you may have a master's degree at entrance, you must go through the qualifying examination process to qualify for the Ph.D.

After the two-year program is completed and you have qualified to pursue the Ph.D. as a result of the qualifying examinations, you will select your individual research adviser and chart the plan of study to be followed. You must be in residence for a minimum of two quarters, during which time you are to satisfy the following minimum requirements:

(1) **Minor Field:** You must complete your third course in the minor field and take a written examination or submit a paper appropriate for determining proficiency in the minor field. In case of failure you may retake the examination once.

(2) **Elective:** With the approval of your research adviser and graduate adviser, you will take one elective course within or outside the department. The elective should be relevant to the dissertation topic and may be a 596 course provided it is a substantive course.

(3) **Directed Reading and Research:** You must take Political Science 590A to research your proposed dissertation topic and 590B to prepare your research design for the dissertation. Normally, course 590B is taken preceding or during the quarter in which the oral examination is taken. With the approval of your research adviser, you may take more than one elective or 590A or 590B course.

## Teaching Experience

All graduate students in the Department of Political Science, before being granted the Ph.D., are required to have formal teaching experience in an institution of higher learning. Waiver of this requirement is possible in exceptional circumstances by petition to the graduate studies committee.

## Thesis Plan

If you select the thesis plan, you will qualify solely for the M.A. degree. The two courses you take instead of a minor field will be under the direction of your thesis adviser. They will usually be Political Science 596 which is normally taken in the Fall and Winter Quarters of the second year, followed by course 598 in Spring Quarter.

You must decide on the thesis plan by the middle of the Spring Quarter of your first year and must form a thesis committee. You will begin researching and writing the thesis by the Fall Quarter of your second year, working closely with members of the committee. The final version of the thesis must be submitted to the committee no later than the sixth week of the Spring Quarter so that the M.A. degree can be conferred by the end of that quarter, provided all requirements have been met and the thesis has been approved.

If the committee does not receive or does not approve the thesis, you will be considered to have failed the requirement and will not be allowed to resubmit the thesis. If you have received the M.A. on the thesis plan, you may register for the Ph.D. program without reapplying, but you must take the qualifying examinations in the two major and one minor fields by the Spring Quarter of your third year at UCLA.

## Qualifying Examinations

You must take the qualifying examinations in your two major fields in the Spring Quarter of your second year unless you have selected the M.A. thesis plan. Retake examinations will be taken in the Fall Quarter of the subsequent year. The outcome of the spring examinations determines whether you (1) qualify for the Ph.D. and obtain an M.A.; (2) obtain an M.A. degree but do not qualify for the Ph.D.; (3) obtain an M.A. but must retake an examination in one or both fields to qualify for the Ph.D.; or (4) fail to obtain an M.A. and are terminated from the program.

Written examinations will be given in each of the major fields. Each field committee will provide assessments of the examinations as to whether (1) your performance is sufficient for the M.A. degree and (2) it also qualifies you to begin work at the Ph.D. level. The following two-tier grading system is used for each examination: for the M.A., grades are pass and not pass; for the Ph.D., grades are not qualified, marginal, qualified, and qualified with distinction. To obtain an M.A. degree only, you must receive a grade of pass on at least one field examination. If you obtain a pass on both field examinations, you will receive a departmental letter certifying qualification in both fields.

To qualify for the Ph.D., you must (1) receive grades of pass on both field examinations and (2) receive a grade of qualified or qualified with distinction in both examinations. If grades of

marginal are received on both examinations, an ad hoc committee will be formed to determine whether you will be allowed to retake the examinations.

There are no retake examinations for the M.A. degree. Retake examinations are given to determine whether you qualify for the Ph.D. track. They may be retaken once only, provided you receive a grade of qualified in one field and not qualified or marginal in the second field.

Once you have successfully completed all course and examination requirements and have prepared a formal research design for the proposed dissertation acceptable to the research adviser, you may proceed to the University Oral Qualifying Examination. The research design must be submitted to the oral examination committee at least two weeks before the examination. The purpose of the oral examination is to assess the adequacy of your preparation in undertaking the proposed dissertation, to suggest ways in which the research design may be strengthened, and to determine whether the proposed dissertation is feasible and can be completed successfully. After successful completion of the University Oral Qualifying Examination and the language or methodological requirement, you will be advanced to candidacy.

Approval of a written dissertation by your doctoral committee constitutes the final requirement for the Ph.D. degree in Political Science.

## Final Oral Examination

The doctoral committee for each candidate decides whether or not a final oral examination should be required.

## Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Lower Division Courses

**1. Introduction to American Government.** Lecture, three hours; discussion, one hour. An introduction to the principles and problems of government, with particular emphasis on national government in the United States. Fulfills the American History and Institutions requirement.

**6. Introduction to Quantitative Research.** An introduction to the collection and analysis of political data. The course emphasizes the application of statistical reasoning to the study of relationships among political variables. Students use the 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.** (Formerly numbered 110.) Lecture, three hours; discussion, one hour. Meets the Political Science 110 requirement for all students who need 110 for the major. An exposition and analysis of selected political theorists and concepts from Plato to the present.

Mr. Ashcraft, Mr. Campbell, Mr. Rapoport, Mr. Smith  
**20. World Politics: Problems of Power Politics.** (Formerly numbered 2A.) Lecture, three hours; discussion, one hour. Required of all students concentrating in Field II. Introduction to problems of world politics.  
Mr. Wilkinson

**21. World Politics: Problems of World Order.** (Formerly numbered 2B.) Lecture, three hours; discussion, one hour. Either course 20 or 21 is required of all students concentrating in Field II and may be applied toward one of the two course requirements for the "Preparation for the Major." An introduction to problems of world politics.

**40. Introduction to Politics.** The course examines the basic institutions and processes of democratic politics. A treatment of themes such as constitutionalism, representation, participation, and leadership is coupled with particular emphasis on the American case.

**50. Introduction to Comparative Government.** (Formerly numbered 3.) Lecture, three hours; discussion, one hour. A comparative study of constitutional principles, governmental institutions, and political processes in selected contemporary states, with emphasis on the major European governments.

**70. The Supreme Court.** (Formerly numbered 171.) Lecture, four hours; discussion, one hour. Required of all students concentrating in Field V. An introduction to American constitutional development and the role of the Supreme Court as interpreter of the U.S. Constitution. Students read Supreme Court cases as well as various historical and current commentaries.

Mr. Hobbs, Mr. Welsh

**80. Introduction to Public Administration.** (Formerly numbered 181.) An introduction to the role of the bureaucracy in the modern state. Particular attention to the performance of American administrative systems.

Mr. Fried, Mr. Ries

## Upper Division Courses

Prerequisite for all upper division courses: upper division standing or consent of instructor.

**C102. The Statistical Analysis of Political Data.** Prerequisite: course 6. An 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, the analysis of variance, and multiple regression and correlation. Statistical techniques and topics are illustrated with applications to a variety of political data. May be concurrently scheduled with course C204.

Mr. Brown, Mr. Marvick, Mr. Petrocick

**M103A. Economic Models of Public Choice.** (Formerly numbered M103.) (Same as Economics M135A.) Prerequisites: Economics 101A, any lower division political science course other than Political Science 1, junior/senior standing, or consent of instructor. The course analyzes the methods and consequences of arriving at collective decisions through political mechanisms. Topics include the free-rider problem, voting and majority choice, demand revelation, and political bargaining.

Mr. Hirshleifer, Mr. Rogowski, Mr. Stein

**M103B. Economic Models of Political Conflict and Conflict Resolution.** (Same as Economics M135B.) Prerequisites: Economics 101A, any lower division political science course other than Political Science 1, junior/senior standing, or consent of instructor. Biological, cultural, and organizational sources of political conflict. The role of threats, promises, commitments. Models of the onset and termination of conflict. The conduct of war: strategy and tactics.

Mr. Hirshleifer, Mr. Rogowski, Mr. Stein

**104A-104B. Introduction to Survey Research.** Prerequisite: course 6 (undergraduates) or course C203C (graduates). Courses in the fundamentals of survey research as a method. **104A** covers sampling theory and methods, the writing of questions, questionnaire construction, and interviewing. In addition, students are introduced to attitudes, attitude measurement, and attitude change. Students participate in the formulation of a research problem. **104B.** Prerequisite: course 104A. Involves conducting a survey. Students are responsible for developing a survey questionnaire, designing a sample, collecting interviews, maintaining quality control, and coding the interviews for machine tabulation. The final requirement is that students perform a computer-aided analysis of some part of the data and submit a written report of that research. Both quarters must be taken to receive credit.

## Field I: Political Theory

**111A. History of Political Thought: Ancient and Medieval Political Theory.** An exposition and critical analysis of the major political philosophers and schools from Plato to Machiavelli.

Mr. Campbell

**111B. History of Political Thought: Early Modern Political Theory.** An exposition and critical analysis of the major political philosophers and schools from Hobbes to Bentham.

Mr. Ashcraft, Mr. Campbell

**111C. History of Political Thought: Late Modern and Contemporary Political Theory.** An exposition and critical analysis of the major political philosophers and schools from Hegel to the present.

Mr. Ashcraft, Mr. Nixon, Mr. Wolfenstein

**112. Nature of the State.** A systematic analysis of modern concepts and problems of political association.

Mr. Nixon

**113. Problems in 20th-Century Political Theory.** A study and interpretation of theorists who have focused their analyses on the social and political problems of the 20th century.

Mr. Rocco

**114A-114B. American Political Thought:**

**114A.** An exposition and critical analysis of American political thinkers from the Puritan period to 1865.

**114B.** Prerequisite: course 114A or consent of instructor. An exposition and critical analysis of American political thinkers from 1865 to the present.

Mr. Smith

**115. Theories of Political Change.** A critical examination of theories of political change, the relation of political change to changes in economic and social systems, and the relevance of such theories for the experience of both Western and non-Western societies. May be applied toward either Field I or IV.

Mr. Coleman, Mr. Lofchie

**116. Marxism.** A critical analysis of the origins, nature, and development of Marxist political theory.

Mr. Ashcraft, Mr. Wolfenstein

**117. Jurisprudence.** 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 V.

Mr. Gerstein

**119A-119Z. Special Studies in Political Theory.** 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 are offered on a regular basis, with topics announced in the preceding quarter. Courses 119, 139, 149, M169, 179, and 189 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.

## Field II: International Relations

**120. Foreign Relations of the United States.** Lecture, three hours; discussion, one hour. A survey of the factors and forces entering into the formation and implementation of American foreign policy, with special emphasis on contemporary problems.

Mr. Spiegel, Mr. Stein

**121. Studies in Formulation of American Foreign Policy.** A study of the formation of American foreign policy with respect to individual cases. Specific topics are announced in the *Schedule of Classes* each quarter.

**122. World Order.** Lecture, three hours; discussion, one hour. Prerequisite: course 20. A study of the problems of the international system seen as a community capable of cooperation and development.

Mr. Wilkinson

**123. International Organization and Administration.** Prerequisite: course 20. A general survey of the institutions, political and administrative, of international organization, with emphasis on the United Nations. May be applied toward either Field II or VI.

**124. International Political Economy.** Prerequisite: course 20. A study of the political aspects of international economic issues.

**125. Arms Control and International Security.** Prerequisite: course 20. Survey of contemporary arms control issues, with emphasis on efforts to limit nuclear weapons proliferation and the international arms trade.

**126. Peace and War.** Prerequisites: courses 6, 20. Theory and research on the causes of war and the conditions of peace.

Mr. Wilkinson

**127. The Atlantic Area in World Politics.** Prerequisite: course 20. A contemporary survey of the foreign policies of the North Atlantic countries and of cooperative efforts to attain political, economic, and military coordination on a regional basis.

Mr. Zoppo

**128A-128B. The Soviet Sphere in World Politics.** Prerequisite: course 20. Course 128A or consent of instructor is prerequisite to 128B. A contemporary survey of the foreign policies and aspirations of the Soviet Union and other states in the Soviet bloc; analysis of content and effects of Communist doctrine affecting relations between the Soviet and democratic spheres.

Mr. Cattell, Mr. Kolkowicz, Mr. Korbonski

**131. Latin American International Relations.** Prerequisite: course 20. The major problems of Latin American international relations and organization in recent decades.

Mr. Gonzalez

**132A-132B. International Relations of the Middle East:**

**132A.** Prerequisite: course 20. Contemporary regional issues and conflicts, with particular attention to inter-Arab politics, the Arab-Israeli problem, and the Persian Gulf area.

**132B.** Prerequisite: course 132A or consent of instructor. Role of the great powers in the Middle East, with emphasis on American, Soviet, and West European policies since 1945.

**135. International Relations of China.** Prerequisite: course 20. The relations of China with its neighbors and the other powers, with emphasis on contemporary interests and policies of China vis-à-vis the United States and the Soviet Union.

Mr. Baum

**136. International Relations of Japan.** Prerequisite: course 20. The foreign policies of Japan and the interests and policies of other countries, particularly the United States, as they relate to Japan.

Mr. Baerwald

**137. International Relations Theory.** Prerequisite: course 20. An examination of various theoretical approaches to international relations and their application to a number of historical cases and contemporary problems.

Mr. Stein

**138A-138B-138C. Defense Studies.** Prerequisite: course 20.



**138A. Defense Strategy and Policies.** Analysis of national and international security problems in the nuclear era, with special emphasis on the United States.

**138B. The Conduct of Modern War.** A study of recent and contemporary wars, with special emphasis on political and strategic problems.

**138C. Military Policy and Organization.** A study of the institutional and policy framework in the national military field. May be applied toward either Field II or VI.

Mr. Riles

**139A-139Z. Special Studies in International Relations.** 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 are offered on a regular basis, with topics announced in the preceding quarter. Courses 119, 139, 149, M169, 179, and 189 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.

**M139. Political and Economic Issues in the Proliferation of Nuclear Weapons.** (Same as Economics M103A.) The course provides an interdisciplinary approach to the problem of nuclear proliferation. It also deals with the economic aspects of the acquisition of nuclear weapons and economic aspects of nuclear energy treating technological, bargaining, and stability issues.

Mr. Intriligator (alternate years)

### Field III: Politics

**M140. Political Psychology.** (Same as Psychology M138.) Prerequisite: Psychology 10. Examination of political behavior, political socialization, personality and politics, racial conflict, and the psychological analysis of public opinion on these issues.

Mr. Sears

**141. Public Opinion and Voting Behavior.** Lecture, three hours; discussion, one hour. A study of the character and formation of political attitudes and public opinion. The role of public opinion in elections, the relationship of political attitudes to the vote decision, and the influence of public opinion on public policy formulation are emphasized.

Mr. Brown, Mr. Petrocik

**142. The Politics of Interest Groups.** A systematic investigation of the role of political interest groups in the governmental process, with attention to the internal organization, leadership, and politics of such groups to the goals and functions of various types of groups and to the strategy and tactics of influence.

Ms. Orren, Mr. Skowronek

**143. Legislative Politics.** A study of those factors which affect the character of the legislative process and the capacity of representative institutions to govern in contemporary society.

Mr. Marvick, Mr. Snowiss

**144. The American Presidency.** A study of the nature and problems of presidential leadership, emphasizing the impact of the bureaucracy, congress, public opinion, interest groups, and the party system on the presidency and national policy-making.

Ms. Orren, Mr. Skowronek, Mr. Snowiss

**145. Political Parties.** The organization and activities of political parties in the United States. Attention to the historical development of the parties, the nature of party change, campaign functions and the electoral role of the parties, membership problems and party activists, political finance, and policy formulation practices.

Mr. Brown, Mr. Marvick, Mr. Petrocik

**146. Political Behavior Analysis.** Prerequisite: course 141. The use of quantitative methods in the study of political behavior, especially in relation to voting patterns, political participation, and techniques of political action.

Mr. Brown, Mr. Marvick, Mr. Petrocik

**M147. Minority Group Politics.** (Formerly numbered 147.) (Same as Chicano Studies M147.) Lecture, three hours; discussion, one hour. Prerequisites: course 1 plus one of the following: one additional 140-level course or one upper division course on race or ethnicity from history, psychology, or sociology, or consent of instructor. A systematic evaluation of the functioning of the American polity related to problems of race and ethnicity. Topics include leadership, organization, ideology, conventional versus unconventional political behavior, inter-minority relations, co-optation, symbolism, and repression.

Mr. Rocco

**149A-149Z. Special Studies in Politics.** Prerequisites: two courses in Field III and consent of instructor. Intensive examination of one or more special problems appropriate to politics. Sections are offered on a regular basis, with topics announced in the preceding quarter. Courses 119, 139, 149, M169, 179, and 189 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.

Also see course 182A

### Field IV: Comparative Government

**152. British Government.** The government and politics of the United Kingdom; the British constitution, parliament, parties and elections, foreign policies, administrative problems, and local governments.

Mr. Freedman

**153. Governments of Western Europe.** The constitutional and political structure and development of France and other states of continental Western Europe, with particular attention to contemporary problems.

Mr. Dogan, Mr. Rogowski

**154. Governments of Central Europe.** The constitutional and political structure and development of Germany and other Central European states, with particular attention to contemporary problems.

Mr. Rogowski

**156. The Government of the Soviet Union.** An intensive study of the political and institutional organization of the Soviet Union and its component parts, with special attention to contemporary political issues, as well as party and governmental structures.

Mr. Cattell, Mr. Kolkowicz, Mr. Korbonski

**157. Governments of Eastern Europe.** A study of the political and governmental organization of the Communist countries of Eastern and Central Europe (exclusive of the U.S.S.R.), with special reference to the institutions, practices, and ideologies including interregional relations.

Mr. Korbonski

**159. Chinese Government and Politics.** Organization and structure of Chinese government, with particular attention to the policies, doctrines, and institutions of Chinese Communism; political problems of contemporary China.

Mr. Baum

**160. Japanese Government and Politics.** The structure and operation of the contemporary Japanese political system, with special attention to domestic political forces and problems.

Mr. Baerwald

**161. Government and Politics in Southeast Asia.** The institutional and political processes and problems of states in Southeast Asia (Burma, Thailand, Malaya, Laos, Cambodia, Vietnam, Indonesia, and the Philippines).

**162. Government and Politics in South Asia.** A comparative study of political change and the development and performance of public institutions in Southern Asia, with special emphasis on India, Pakistan, and Bangladesh.

Mr. Sisson

**163A. Government and Politics in Latin America.** A comparative study of governmental and political development, organization, and practices in the states of Middle America.

Mr. Gonzalez

**163B. Government and Politics in Latin America.** A comparative study of governmental and political development, organization, and practices in the states of South America.

Mr. Gonzalez

**164. Government and Politics in the Middle East.** A comparative study of government in the Arab States, Turkey, Israel, and Iran.

**165. Government and Politics in North Africa.** A comparative study of the government and politics of the North African states, including the relationship between political development, political organization, and social structure.

**166A-166B-166C. Government and Politics in Sub-Saharan Africa.** Patterns of political change in Africa south of the Sahara, with special reference to nationalism, nation building, and the problems of development: **166A.** Western Africa; **166B.** Eastern Africa; **166C.** Southern Africa.

Mr. Coleman, Mr. Lofchie, Mr. Sklar

**167. Ideology and Development in World Politics.** A comparative study of the major modes of political and economic development in the world today. Relations between industrial and nonindustrial societies are examined in light of the current debate about imperialism.

Mr. Sklar

**168L. Comparative Political Analysis.** Lecture. Prerequisites: two courses in Field IV, or course 50 and one course in Field IV. Either course 168L or 168S is required of all students concentrating in Field IV (students with credit for course 168S will not receive credit for this course). The course is conducted as a lecture course. Major approaches to the study of comparative politics. Concepts and methodology of comparative analysis.

**168S. Comparative Political Analysis.** Seminar. Prerequisites: two courses in Field IV, or course 50 and one course in Field IV, and consent of instructor. Either course 168L or 168S is required of all students concentrating in Field IV (students with credit for course 168L will not receive credit for this course). The course is conducted as a seminar. Major approaches to the study of comparative politics. Concepts and methodology of comparative analysis.

**M169A-M169Z. Special Studies in Comparative Government.** (Formerly numbered 169A-169Z.) Prerequisites: two courses in Field IV, or course 50 and one course in Field IV, and consent of instructor. Intensive examination of one or more special problems appropriate to comparative government. Sections are offered on a regular basis, with topics announced in the preceding quarter. Courses 119, 139, 149, M169, 179, and 189 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.

**M169B. Special Studies in Comparative Government: Race, Class, and Politics in Latin America.** (Same as Afro-American Studies M100A.) Intensive examination of one or more special problems appropriate to comparative government. Sections are offered on a regular basis, with topics announced in the preceding quarter.

Mr. Fontaine (F)

Also see courses 115, 188A, 188B

### Field V: Public Law

**170. The Anglo-American Legal System.** Lecture, four hours; discussion, one hour. Either course 170 or 171 is required of all students concentrating in Field V. Evolution of the English common law courts and their legal system, with emphasis on the development of the basic concepts of law which were received from that system in the United States and remain relevant today.

Mr. Gerstein

**172A. American Constitutional Law.** Prerequisite: course 70. Constitutional questions concerning the separation of powers, federalism, and the relationship between government and property.

Mr. Gerstein, Mr. Hobbs

**172B. American Constitutional Law.** Prerequisite: course 70. The protection of civil and political rights and liberties under the constitution.

Mr. Gerstein, Mr. Hobbs

**173. Government and Business.** The nature of the corporation; the regulation of competition; government promotion of economic interests; regulation of industries clothed with a public interest; government ownership and operation. May be applied toward either Field V or VI. Mr. Bernstein, Ms. Orren

**174. Government and Labor.** The labor force and the nature of the trade union; regulation of labor relations; programs to encourage full employment and to mitigate unemployment; protective labor legislation. May be applied toward either Field V or VI. Mr. Bernstein

**175A-175B. International Law.** A study of the nature and place of international law in the conduct of international relations. May be offered in consecutive terms or simultaneously. If offered consecutively, course 175A is prerequisite to 175B, and a student may take 175A alone for four units credit. If offered simultaneously, a student must take both courses for eight units. A maximum of four units may be applied toward Field II.

**179A-179Z. Special Studies in Public Law.** Prerequisites: course 70, one additional course in Field V, any special requirements, and consent of instructor. Intensive examination of one or more special problems appropriate to public law. Sections are offered on a regular basis, with topics announced in the preceding quarter. Courses 119, 139, 149, M169, 179, and 189 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.

Also see courses 117, 187

## Field VI: Public Administration and Local Government

**180. State and Local Government.** A study of state political systems, including their administrative and local subsystems; intergovernmental relationships; their policy outputs, with specific attention to California. Mr. Hammond

**182A. Metropolitan Area Government and Politics.** An overview of the political and social organization, decision making processes, policy problems, and conflicts of metropolitan areas and their central cities and suburbs. Attention to the impact on these areas of the national and state political systems and racial, ethnic, and protest movements. May be applied toward either Field III or VI.

**182B. City Government and Politics.** Prerequisite: course 182A or consent of instructor. Intensive analysis of contemporary urban governance in the United States. Emphasis on such student participatory activities as fieldwork, research, and gaming of urban politics and policy problems.

**183. Administration of International Agencies and Programs.** An examination of the administrative patterns and practices of the United Nations agencies and overseas development programs, including distinctive characteristics of organization and management selection of personnel, and methods of financing.

**185. Public Personnel Administration.** The process of formulating and administering public personnel policies; concepts and principles utilized in selected governmental personnel systems. Focus is on governmental systems in the United States (national, state, local, foreign service, military), but comparisons are also made with other selected governmental systems.

**186. National Policy and Administration.** A study of the major policies and programs of the national government and their administration as illustrated in such areas as national defense, social welfare, agriculture, etc. Particular attention to the role of the President and other administrators in formulating public policy and in maintaining a responsible bureaucracy. Mr. Fried

**187. Law and Administration.** Legal controls of administration action. Substantive and procedural limits on administrative discretion imposed by legislation, executive and judicial agencies, and the sources of legal powers of administrative bodies within these limits. May be applied toward either Field V or VI.

**188A. Comparative Public Administration.** An analysis of bureaucratic structures and function in the United States, other industrialized, and less developed countries, primarily at the national level. Special attention to methods of comparative analysis and the utility of various models. May be applied toward either Field IV or VI. Mr. Fried

**188B. Comparative Urban Government.** A cross-cultural examination of the forms and processes of urban government. Particular attention to the role of urbanization in political development. May be applied toward either Field IV or VI. Mr. Fried

**189A-189Z. Special Studies in Public Administration.** Prerequisites: two courses in Field VI and consent of instructor. Intensive examination of one or more special problems appropriate to public administration. Sections are offered on a regular basis, with topics announced in the preceding quarter. Courses 119, 139, 149, M169, 179, and 189 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.

**190. Theories of Organization.** An examination of the theoretical frameworks for studying public and private bureaucracies, with emphasis on ideologies, values, behavioral patterns, and concepts of organization. Mr. Hammond, Mr. Hoffenberg

**191. Urban and Regional Planning and Development.** A comparative study of governmental policies, procedures, and agencies involved in the planning and development of urban and regional communities and areas. Mr. Hoffenberg

Also see courses 138C, 173, 174

## Special Studies

**195A-195B-195C. Honors Seminar and Thesis.** Prerequisites: one course in the C197 series, a 3.5 GPA at the upper division level in political science courses, eligibility for Letters and Science honors status. Course 195A is prerequisite to 195B, which is prerequisite to 195C. A 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 a 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 the instructor to discuss the progress of their research.

**195B-195C.** Writing of an honors thesis under the direction of a faculty member. The thesis is read by the appropriate field committee and graded high honors, honors, or no honors.

**C197A-C197F. Seminars for Majors.** Prerequisites: political science major, upper division standing, a 3.25 GPA at the upper division level in political science courses, two upper division courses in the field in which the seminar is offered. May be applied toward the distribution or concentration requirement. May be concurrently scheduled with various graduate courses.

**199. Readings in Political Science (2 to 4 units).** Prerequisites: upper division standing, 3.0 overall GPA, consent of instructor and department Chair. Individual study. May not be applied toward the concentration or distribution requirement. May be repeated for a maximum of sixteen units.

## Graduate Courses

**200. Survey of the Discipline.** Seminar, three hours. Required of all graduate students and normally taken during the Fall Quarter of the first year. Other students may be admitted by consent of instructor. An introduction to major areas of inquiry within the fields of political science. S/U grading. Mr. Sisson

**203A-203B-C203C. Introduction to Political Inquiry:**

**203A.** Problems of Scientific Inquiry and Normative Discourse. Mr. Nixon

**203B.** Major Conceptual Frameworks and Approaches to Political Science. Prerequisite: course 203A or equivalent.

**C203C.** Quantitative Research Methods in Political Science. An introduction to the analysis of political data. The relationships among theory, concepts, measurements, and inference are stressed. The nature of measurement is discussed, and there is an introduction to scaling, index construction, and the measurement of political variables. The student becomes familiar with such ideas as variables, relationships, association and correlation, controls and causal ordering. Students are introduced to basic techniques of data collection and analysis. They also engage in computer-aided interpretation of political data. May be concurrently scheduled with course C197C.

**C204. Quantitative Applications.** A survey of quantitative research techniques and their application to the study of political phenomena. May be concurrently scheduled with course C102.

Mr. Brown, Mr. Marvick, Mr. Petrocik

**210A-210B. An Introduction to Political Theory.** Lecture, three hours:

**210A.** Classical and Medieval Formulations. An exploration of major texts and issues in political theory from Plato through Aquinas.

**210B.** The Early Modern Period. An exploration of major texts and issues in political theory from Machiavelli through the Enlightenment.

**211. Political Theory.** An analysis of the central problems of political inquiry and their relation to political philosophy.

**212. International Relations.** An examination of contemporary theories and methodologies in international relations, with applications to contemporary international politics. Mr. Stein

**213. American Foreign Policy.** An examination of major contemporary problems. Mr. Zoppo

**214A-214B. Survey Courses in American Politics.** Students taking M.A. or Ph.D. examinations in the politics field will ordinarily have completed these courses before the examination sequence:

**214A.** Political Parties and the Electoral Process.

Mr. Brown, Mr. Marvick, Mr. Petrocik

**214B.** American Political Institutions.

Mr. Orren, Mr. Skowronek, Mr. Snowiss

**215A-215B. Comparative Government.** Course 215A or consent of instructor is prerequisite to 215B. Approaches to the study of comparative politics and problems of comparative political analysis.

Mr. Brown, Mr. Cattell, Mr. Rogowski, Mr. Sisson

**C216. Public Law.** A systematic analysis of the scope and nature of public law, with particular attention to its materials and methods as illustrated in concepts and doctrines drawn from various of its subject fields. May be concurrently scheduled with course C197E. Mr. Gerstein

**C218A. Public Administration and Democratic Government.** An analysis of the nature and scope of public administration and its role in modern political systems. May be concurrently scheduled with course C197F. Mr. Engelbert

**C218B. Approaches to Organizational Analysis.** Analysis of several of the major conceptual alternatives for the 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 is critically evaluated for its strengths and weaknesses as a guide to understanding organizational analysis. May be concurrently scheduled with course C197F.

Mr. Ries

**C218C. Public Administration and Public Policy.** Discussion, three hours. A systematic analysis of the 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 C197F.

**C221. Selected Texts in Political Theory.** A critical examination of major texts in political theory, with particular attention to their philosophic system, their relations to the contemporary political and intellectual currents, and the importance of the system for present-day political analysis. May be concurrently scheduled with course C197A.

**C222. Selected Topics in Political Theory.** A critical examination of a major problem in political theory. May be concurrently scheduled with course C197A.

#### **224A-224K. Studies in Politics:**

**224A. Politics and Economy.** An analysis of the theoretical and practical relationships between economic organization and governmental institutions. Includes the development and political implications of the market system, banking and finance, corporate enterprise, and organized labor.

Ms. Orren

**C224B. Political Recruitment.** A critical evaluation of the literature concerned with the backgrounds of public figures and with the screening and sponsoring mechanisms affecting their careers and political perspectives. May be concurrently scheduled with course C197C.

Mr. Marvick

**C224C. Politics and Society.** The application of selected classical and contemporary sociological theories to politics. May be concurrently scheduled with course C197C.

Ms. Orren, Mr. Skowronek

**224D. Group Theories of Politics.** Critical appraisal of "group theory" approaches to the study of political decision making, with special attention to empirical research problems and findings.

Ms. Orren

**C224E. Legislative Behavior.** The analysis of the major approaches to the study of representative institutions, with special emphasis on the assumptions, concepts, methods, and theoretical implications associated with each approach. May be concurrently scheduled with course C197C.

Mr. Marvick, Mr. Snowiss

**C224F. Executive Politics and the Presidency.** An analysis of executive organization and leadership, with emphasis on the American Presidency. Special attention to theories of organization and personality and the relationship between the executive and other institutions and groups. May be concurrently scheduled with course C197C.

Ms. Orren, Mr. Skowronek, Mr. Snowiss

**M224G. Political Psychology.** (Same as Psychology M228.) Discussion, three hours. Prerequisites: Psychology 220A-220B or consent of instructor. Examination of political behavior, political socialization, personality and politics, racial conflict, and the analysis of public opinion on these issues.

Mr. Sears

**C224H. Mass Attitudes and Behavior.** Prerequisite: course 141 or 214A or consent of instructor. An analysis of the development and change of political attitudes in mass publics and their relationship to voting, protest, and violence. May be concurrently scheduled with course C197B.

Mr. Brown, Mr. Petrocik

**C224I. Political Parties.** A critical examination of the literature on party systems and organization. Special attention to political functions, electoral campaigns, and party cadres. May be concurrently scheduled with course C197C.

Mr. Marvick, Mr. Petrocik

**228A. Personnel and Human Relations.** An analysis of the policies, processes, organizations, and interrelationships involved in manning the public services.

**C228B. Public Planning, Programming, and Budgeting.** Public budgeting processes within a political and organizational framework. Special emphasis on the federal program/budgeting system and the interplay between contemporary bureaucratic and decision theory of rational allocation of resources. May be concurrently scheduled with course C197F.

Mr. Hoffenberg, Mr. Ries

**228C. Political and Administrative Aspects of Planning.** A study of the political constraints on and support for effective planning. Topics include the relationships between planning performance on the one hand, and forms of government, distribution of power, political culture, law, and social structure on the other.

Mr. Fried

**C228D. The Federal Bureaucracy.** Seminar, three hours; discussion, one hour. An examination of the formulation and implementation of policy at the federal level. The consequences of administrative performance for American political and social life are explored. May be concurrently scheduled with course C197F.

Mr. Hammond

**C228E. State Administrative Systems.** An analysis of state administrative systems, their local subsystems, and their outputs. May be concurrently scheduled with course C197F.

Mr. Fried

**CM229. Urban Government.** (Same as Architecture and Urban Planning M205C.) An analysis of the policies, processes, interrelations, and organization of governments in heavily populated areas. May be concurrently scheduled with course C197F.

**C230. Comparative Development Administration.** Seminar, three hours; discussion, one hour. An analysis of the administration of development programs and the development of administrative institutions, with special attention to ecology. Comparisons are made both between countries and within countries. May be concurrently scheduled with course C197F.

Mr. Nazih Ayubi

#### **C231A-C231D. Studies in International Relations:**

**C231A. Contemporary Problems in United States Foreign Policy.** An intensive analysis of the policy formulation process and the substance of selected contemporary problems in foreign policy. Political and institutional factors affecting foreign policies are stressed, along with the analysis of policy options. May be concurrently scheduled with course C197B.

**C231B. Politics and Strategies of Modern War.** Seminar, three hours; discussion, one hour. The course analyzes various national security problems in both their military/technical and political dimensions. It seeks to develop in some depth issues likely to be raised in course 138A (not a prerequisite). May be concurrently scheduled with course C197B.

Mr. Kolkowicz

**231C. International Law and Organization.** The course emphasizes the role of law and organization in the conduct of contemporary international politics. International organization is considered as an integral process within the contemporary international legal system whose characteristics are explored in depth.

**C231D. International Relations Theory.** An introduction to contemporary problems in international relations theory. May be concurrently scheduled with course C197B.

Mr. Stein, Mr. Wilkinson

**232. Seminar on International Political Economy.** An intensive examination of various theoretical approaches to issues related to the politics of the world economy and their application to historical and contemporary issues.

**235. Selected Topics in Comparative Politics.** A critical examination of a major problem in comparative politics.

**236A-236B. The Foundations of Representative Government.** An analysis of the factors affecting the development and functions of representative institutions in the United States, Europe, and selected political systems of Africa, Asia, and Latin America. Comparative government or politics field credit:

**236A.** An introduction to the literature on the development of elective institutions and their performance. The course takes an interdisciplinary approach, emphasizing historical as well as contemporary cases and modes of analysis.

**236B.** Prerequisite: course 236A or consent of instructor. A research seminar devoted to the analysis of particular problems and countries.

Mr. Sisson, Mr. Snowiss

#### **C238A-C238D. Studies in Public Law:**

**C238A.** Evolution of Anglo-American Law Books. Surviving early records. Case reporting, from the year books to the modern reports. Legal treatises from Glanvill to today. Statutes and how to find them. The language of the law. Although emphasis is on American materials, the entire English-speaking world is covered. May be concurrently scheduled with course C197E.

Mr. Gerstein

**C238B.** Making of the Constitution. An examination of the development of constitutional law during selected periods of American history, such as founding, the Marshall and Taney eras, and the New Deal. Emphasis on both judicial and nonjudicial materials. May be concurrently scheduled with course C197E.

Mr. Hobbs

**C238C.** The Bill of Rights and the States. An examination of the problems surrounding the application to the states of Amendments 1 through 9. May be concurrently scheduled with course C197E.

Mr. Hobbs

**C238D.** Current Problems in Public Law. A discussion of selected contemporary problems in jurisprudence, the judicial process, judicial behavior, and legal controls on social conduct. May be concurrently scheduled with course C197E.

Mr. Gerstein, Mr. Welsh

Prerequisite for graduate seminars (C250A through C271) is advance consent of instructor.

#### **C250A-C250L. Seminars in Regional and Area Political Studies:**

**C250A.** Latin American Studies. Seminar, three hours; discussion, one hour. May be concurrently scheduled with course C197D.

Mr. Gonzalez

**C250B.** Russian and Slavic Studies. May be concurrently scheduled with course C197C.

Mr. Cattell, Mr. Kolkowicz, Mr. Korbonski

**C250C.** Chinese and East Asian Studies. May be concurrently scheduled with course C197D.

Mr. Baum

**C250D.** Japanese and Western Pacific Studies. May be concurrently scheduled with course C197D.

Mr. Baerwald

**C250E.** Seminar in African Studies. May be concurrently scheduled with course C197D.

Mr. Coleman, Mr. Lofchie, Mr. Sklar

**C250F.** Middle Eastern Studies. May be concurrently scheduled with course C197D.

#### **250G. Commonwealth Studies.**

**C250H.** Seminar in Western European Studies. Seminar, three hours; discussion, one hour. May be concurrently scheduled with course C197D.

Mr. Rogowski

**C250J.** Southeast Asian Studies. May be concurrently scheduled with course C197D.

**250K.** North African Studies.

**C250L. South Asian Studies.** May be concurrently scheduled with course C197D. Mr. Sisson

**C252. Seminar in Public Law.** May be concurrently scheduled with course C197E.

**C253. Seminar in International Relations.** May be concurrently scheduled with course C197B.

**C254. Seminar in Public Administration.** May be concurrently scheduled with course C197F.

**256A-256B. Seminar in Comparative Government.** Course 256A is prerequisite to 256B.

**257. Seminar in Political Theory.** (Formerly numbered 257A-257B.) Discussion, three hours.

Mr. Ashcraft

**259. Seminar in Political and Electoral Problems.** Prerequisites: two graduate courses in politics.

**C262. Seminar in Municipal Government.** May be concurrently scheduled with course C197F.

**C271. Seminar in Political Change.** An interdisciplinary seminar directed toward the analysis of political change. May be concurrently scheduled with course C197D.

**280A-280B. Advanced Practicum in Administrative Research.** Prerequisites: at least five courses (20 units) at the graduate and upper division level in political science and consent of instructor. An advanced laboratory/seminar in applied research on public agency operational and service delivery problems. The seminar provides an integrated case-study approach to task-force studies dealing with such problems as legislative and policy issues in mandated and nonmandated public functions; program and management organization; budget and finance performance measures; information systems; evaluation of outcomes; political impact analysis; and related problems in administrative decision making.

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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.** A 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 the first quarter of their assistantships. May be taken only in a quarter 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. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. S/U grading.

**590A. Directed Reading for Ph.D. Dissertation Proposal.** Required of all Ph.D. students. Must be taken under the supervision of the research adviser prior to the quarter in which the oral examination is taken. Research for the proposed dissertation topic and submission of a bibliographic essay on that topic. May be repeated by consent of research adviser and graduate adviser.

**590B. Directed Research for Ph.D. Dissertation Proposal.** Prerequisite: course 590A. Required of all Ph.D. students. Must be taken under the supervision of the research adviser prior to or during the quarter in which the oral examination is taken. Development and writing of the research design for the Ph.D. dissertation. May be repeated by consent of research adviser and graduate adviser.

**596. Directed Individual Study or Research (2 to 4 units).** May be applied only three times toward the minimum course requirement in the first two years. May be repeated.

**597. Preparation for Ph.D. Qualifying Examination (2 to 12 units).** May be repeated. S/U grading.

**598. Research for and Preparation of M.A. Thesis (2 to 12 units).** This course is rarely taken because students normally receive the M.A. degree under the comprehensive examination plan. S/U grading.

**599. Research for and Preparation of Ph.D. Dissertation (2 to 12 units).** May be repeated. S/U grading.

## Program in Computing

See Computing, Program in

## Psychology

1285 Franz Hall, 825-2961

### Professors

Arthur P. Arnold, Ph.D.  
Bruce L. Baker, Ph.D.  
Jackson Beatty, Ph.D.  
Peter M. Bentler, Ph.D.  
Robert A. Bjork, Ph.D.  
Manlynn B. Brewer, Ph.D.  
William E. Broen, Jr., Ph.D., *Vice Chair, Graduate Affairs*  
Larry L. Butcher, Ph.D.  
Edward C. Carterette, Ph.D.  
Barry E. Collins, Ph.D.  
Andrew L. Comrey, Ph.D.  
Gaylord D. Ellison, Ph.D.  
Norma Feshbach, Ph.D.  
Seymour Feshbach, Ph.D.  
Morton P. Friedman, Ph.D.  
Rosslyn Gaines, Ph.D., *in Residence*  
John Garcia, Ph.D.  
Harold B. Gerard, Ph.D.  
Michael J. Goldstein, Ph.D.  
Patricia M. Greenfield, Ph.D.  
Constance L. Hammen, Ph.D.  
Barbara A. Henker, Ph.D.  
Nancy M. Henley, Ph.D.  
Eric W. Holman, Ph.D.  
John P. Houston, Ph.D.  
Wendell E. Jeffrey, Ph.D.  
Harry J. Jerison, Ph.D., *in Residence*  
Harold H. Kelley, Ph.D.  
Franklin B. Krasne, Ph.D.  
John C. Liebeskind, Ph.D.  
O. Ivar Lovaas, Ph.D., Litt.D.  
John H. Lyman, Ph.D.  
Irving Maltzman, Ph.D.  
Albert Mehrabian, Ph.D.  
Charles Y. Nakamura, Ph.D.  
Donald Novin, Ph.D.  
Amado M. Padilla, Ph.D.  
Allen Parducci, Ph.D.  
L. Anne Peplau, Ph.D.  
Bertram H. Raven, Ph.D., *Chair*  
David O. Sears, Ph.D.  
David Shapiro, Ph.D.  
Edwin S. Shneidman, Ph.D.  
Gerald H. Shure, Ph.D.  
Stanley Sue, Ph.D.  
Shelley E. Taylor, Ph.D.  
James P. Thomas, Ph.D.  
Bernard Weiner, Ph.D.  
J. Arthur Woodward, Ph.D.  
Eran Zaidel, Ph.D.

### Emeritus Professors

James C. Coleman, Ph.D.  
S. Carolyn Fisher, Ph.D.  
Joseph A. Gengerelli, Ph.D.  
Milton E. Hahn, Ph.D.  
F. Nowell Jones, Ph.D.  
George F. J. Lehnner, Ph.D.  
Donald B. Lindsley, Ph.D., Sc.D.  
Jessie L. Rhulman, Ed.D.  
Eliot H. Rodnick, Ph.D.  
John P. Seward, Ph.D.

### Associate Professors

Paul R. Abramson, Ph.D.  
Howard S. Adelman, Ph.D.  
Richard P. Barthol, Ph.D.  
Elizabeth L. Bjork, Ph.D.  
Andrew Christensen, Ph.D.  
Patrice L. French, Ph.D.  
Gerald M. Goodman, Ph.D.  
Donald G. MacKay, Ph.D.  
George E. Mount, Ph.D.  
Hector F. Myers, Ph.D.  
Thomas D. Wickens, Ph.D.

### Assistant Professors

Duane Buhrmester, Ph.D.  
Felipe Castro, Ph.D.  
Christine A. Dunkel-Schetter, Ph.D.  
Halford H. Fairchild, Ph.D.  
Ralph E. Geiselman, Ph.D.  
Carlos V. Grijalva, Ph.D.  
Daniel B. Kaye, Ph.D.  
Vicki M. Mays, Ph.D.  
Marie A. Morell, Ph.D.  
D. Dean Richards, Ph.D.

### Adjunct and Visiting Professors

Marion Jacobs, Ph.D., *Adjunct*  
James G. Miller, Ph.D., *Adjunct*  
Marvin Spiegelman, Ph.D., *Visiting*

### Adjunct Associate Professors

Jacqueline D. Goodchilds, Ph.D.  
Jill Waterman, Ph.D.

### Adjunct and Visiting Assistant Professors

M. Douglas Anglin, Ph.D., *Adjunct*  
Jeri A. Doane, Ph.D., *Adjunct*  
Paula Geiselman, Ph.D., *Visiting*  
Dennis McGinty, Ph.D., *Adjunct*  
Dahlia Zaidel, Ph.D., *Adjunct*

### Adjunct and Visiting Lecturers

Darrell C. Dearmore, M.A., *Adjunct*  
Pamela C. Freundl, Ph.D., *Adjunct*  
Morris K. Holland, Ph.D., *Adjunct*  
Nancy Kaser-Boyd, Ph.D., *Adjunct*  
Ronald Kendis, Ph.D., *Visiting*  
Kenneth R. Pfeiffer, Ph.D., *Adjunct*  
Linda L. Taylor, Ph.D., *Adjunct*

## Scope and Objectives

We all practice some form of intuitive psychology to understand ourselves and the world around us. In contrast, the psychology curriculum at UCLA focuses on psychology as a scientific discipline which uses systematic methods of investigation to understand general principles of human behavior, cognition, and emotion.

The curriculum treats psychology as a biosocial science; man's behavior is viewed from both biological and social viewpoints. The biosocial perspective allows students to study a

broad range of topics such as psychobiology, animal behavior, learning, motivation, perception, cognition, measurement, memory, social psychology, personality, clinical psychology, and community psychology.

According to recent surveys, the UCLA Psychology Department is ranked as one of the top departments of its kind in the country in terms of faculty quality. The curriculum is both wide in terms of range of courses, and deep in terms of quality of the faculty.

The undergraduate curriculum provides a basic liberal arts foundation. It does not focus on training students to be only professional psychologists, but rather helps them to understand the world and our place in it. A choice of three majors, leading to either the B.A. or B.S. degree, is offered.

At the graduate level, the department offers training leading to the Ph.D. degree with emphases in various fields. The program is designed to prepare psychologists to function effectively as scientific investigators, college and university teachers, and professional psychologists.

## Undergraduate Study

To meet the diverse needs of students, there are three different major curricula: the psychology major, the quantitative psychology major, and the psychobiology major. The first two lead to a Bachelor of Arts degree; the third culminates in a Bachelor of Science degree.

All courses required for these majors (which include lower division courses and major courses) must be taken for a letter grade.

### Pre-Psychology Major

While you are completing the lower division preparation courses for one of the majors listed above, you should be enrolled in the pre-psychology major. Once you have completed the preparation courses for the major, you must petition to enter that major at the Psychology Undergraduate Office, 1531 Franz Hall. Lower division preparation courses vary for each of the three majors, as noted below.

## Bachelor of Arts in Psychology

The general psychology major emphasizes the experimental and research aspects of the field. It is a good choice for students with an interest in human behavior who wish to receive a general education in the liberal arts and sciences.

### Preparation for the Major

The following required courses must be completed for a letter grade (a C – or better in each course and a 2.3 overall grade-point average in the preparation courses): Anthropology 11 or 1 or 2; Biology 2 or 5; Chemistry 2 (if you have completed one year of high school chem-

istry with a C or better, this requirement will be waived) or 11A; Mathematics 2; Physics 10 or 3A or 6A or 8A; one course from Philosophy 1, 3, 4, 6, 7, 8, 9, 10, 21, 22; Psychology 10, 42; Psychology 41 (recommended) or Mathematics 50 or Economics 40. Psychology 41 and 42 should be taken early in your career.

These are minimum requirements in preparing for the major. More advanced courses in science and statistics would provide stronger preparation.

### The Major

Admission to the major is limited to students who have completed the above preparation courses with a grade of C – or better in each course and an overall grade-point average of 2.3 in preparation courses by the time they reach 135 units. You also must have a 2.0 grade-point average in your upper division major courses.

*Required:* (1) Psychology 110, 115, 120, 125, 135; (2) one course from 111, 116, 121, 132B, 136A, C136B, 143, M155, 170B, 174, 176, M181A-M181B; (3) an additional four upper division elective courses (16 units) in psychology.

## Bachelor of Arts in Quantitative Psychology

This major is an alternative to the psychology major. It provides students with basic training in both quantitative skills and in psychology. Quantitative and computer skills are important in all fields of psychology and are a very positive aspect in preparation for a career in psychology or related fields.

### Preparation for the Major

The following required courses must be completed for a letter grade with a 2.0 grade-point average: Biology 2 or 5; Chemistry 2 (if you have completed one year of high school chemistry with a C or better, this requirement will be waived) or 11A; Computer Science 10S (recommended) or 10C or 10F; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 10 or 3A or 6A or 8A; Psychology 10, 42.

These are minimum requirements in preparing for the major. More advanced courses in science would provide stronger preparation.

### The Major

Admission to the major is limited to students who have completed the above preparation courses with a 2.0 grade-point average by the time they attain 135 units. You also must have a 2.0 grade-point average in your upper division major courses.

*Required:* (1) Mathematics 150A-150B or 152A-152B; (2) Psychology 110, 115, 120, 125, 135; (3) six additional upper division courses in quantitative psychology, mathemat-

ics, biostatistics, computer science, and system science (one of these courses must emphasize research methodology in psychology).

Particular courses for the last requirement will depend on your needs and interests. You must consult your faculty adviser for prior approval of courses to meet these requirements.

## Bachelor of Science in Psychobiology

This major is an alternative to the psychology major and is designed for students who plan to go on to postgraduate work in psychobiology or the health sciences.

### Preparation for the Major

For students with less than 90 units of credit by Fall Quarter 1984 and those who will not complete the "Preparation for the Major" before Fall Quarter 1985, the following required courses must be completed for a letter grade (a C – or better in each course and a 2.0 overall grade-point average): Biology 5, 5L, 6, 7, 8; Chemistry 11A, 11B/11BL, 11C/11CL, 21, 23, 25; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 6A, 6B, and 6C, or 3A, 3B, and 3C, or 8A/8AL, 8B/8BL, and 8C/8CL; Psychology 10, 42; Psychology 41 (recommended) or Mathematics 50 or Economics 40. Psychology 41 and 42 should be taken early in your career.

For students with 90 or more units of credit by Fall Quarter 1984 who will complete the "Preparation for the Major" before Fall Quarter 1985, the following required courses must be completed for a letter grade (a C – or better in each course and a 2.0 overall grade-point average): Biology 5, 7; Chemistry 11A, 11B/11BL, 11C/11CL, 21, 23, 25; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; one course from Philosophy 1, 3, 4, 6, 7, 8, 9, 10, 21, or 22; Physics 6A, 6B, and 6C, or 3A, 3B, and 3C, or 8A, 8B, and 8C; Psychology 10, 42; Psychology 41 (recommended) or Mathematics 50 or Economics 40. Psychology 41 and 42 should be taken early in your career.

### The Major

Admission to the major is limited to students who have completed the above preparation courses with a grade of C – or better in each course and a 2.0 overall grade-point average in the preparation courses. You also must have a 2.0 grade-point average in your upper division major courses.

*Required:* (1) Biology 129 or Psychology 118A or Anthropology 128A, and Psychology 110, 115, 116, 120; (2) one course from Psychology 125, 127, 130, 135; (3) four courses from the following list: Psychology 117 (only one section may be used); Biology 107, 112, 113, 114 (no more than one from this group); Psychology 118B, 118C, 118D, 118E, M118F, M119, M153, Biology 102, 105, 110, 111, 120, 122,

124, 131, 135, 138, 139, 144, 145A, 145B, 145C, 153, CM156, 158, 164, 166, 167, 168, 169, 171, 172A, 172B, 173, 177, 179, Kinesiology 140, Chemistry 152.

For students with less than 90 units of credit by Fall Quarter 1984 and those who will not complete the "Preparation for the Major" before Fall Quarter 1985, the following courses may also be applied toward the upper division elective course requirement: Psychology 190 (one course only) and Psychology 199 (one course only) or Biology 199 (one course only).

## Honors

### Honors Courses

The department offers honors courses with limited enrollment in addition to the honors program outlined below. The courses provide close contact with faculty, emphasize readings in the original literature, student oral and written reports, and field or research experience, and offer credit toward College Honors (for information on College Honors, see the beginning of this chapter).

Courses not designated with an H suffix may be taken for honors credit by meeting the requirements set by the instructors of those courses. Check with the individual instructors for information.

Courses taken for honors credit meet the same requirements for graduation as the regular course. Additional information is available from bulletins posted in the department and from the Psychology Undergraduate Office.

### Honors Program

Psychology majors intending to continue study at the graduate level and who plan to pursue a career in an academic or professional area of psychology are encouraged to apply for departmental honors through the psychology honors program. Students engage in advanced research and study leading to a formal bachelor's thesis under the tutorial guidance of a faculty member while enrolled in Psychology 190A-190B-190C. You must complete at least two honors-designated courses in addition to courses 190A-190B-190C with a minimum grade of B. If your thesis is judged acceptable by the honors committee, you are awarded the degree with honors or highest honors. Consult the Psychology Undergraduate Office early in your educational planning for further information and application forms.

## Developmental Disabilities Immersion Program

The Developmental Disabilities Immersion Program is cosponsored by the Department of Psychology and the Department of Psychiatry and Biobehavioral Sciences and by the Office of Instructional Development — Field Studies

Development. Each year a group of 28 students is selected for the program which runs during the Winter/Spring Quarters. Students participate in courses and research at Lanterman State Hospital and Developmental Center, a facility for mentally retarded citizens in Pomona, and do related fieldwork while living at the site.

During each quarter of the program up to 20 units of coursework related to developmental disabilities are offered. Most of the courses are in the Psychology/Psychiatry M180 through M182 series, but courses from other departments (such as Biology) may supplement these offerings. Many of the courses fulfill psychology undergraduate major requirements (consult the Psychology Undergraduate Office for details). Student individualized research projects are also part of the immersion experience.

To supplement their academic activities, students spend ten hours a week working with the developmentally disabled by assisting teachers in the special education classes in nearby public schools or by helping supervise at sheltered workshops. For more information, contact the Psychology Undergraduate Office or Field Studies Development (70 Powell Library).

## Preparation for Graduate Study

Although requirements for admission to graduate programs in psychology in most universities will be satisfied by the above major requirements, both admission to graduate work and progress toward the degree may be impeded in certain areas of psychology if additional preparation is not obtained at the undergraduate level. For this reason, if you plan to do graduate work in psychology, you are advised to take additional work in methodology and statistics and to take advantage of the many advanced undergraduate courses in specific fields offered both by the Psychology Department and related departments. Consult the Psychology Undergraduate Office for more information.

## Ph.D. Degree

The graduate program in psychology leads to the granting of the Ph.D. degree. Although you may obtain the M.A. degree en route to the Ph.D., the department does not admit candidates for the M.A. degree only. For the Ph.D. degree, a thorough background in research methodology and psychological theory is required. Major specialized training is available in the areas of psychology listed below under "Major Fields or Subdisciplines."

A departmental brochure describing the graduate program in psychology is available in 1285 Franz Hall.

## Admission

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 must mail the following documents directly to the Psychology Department, UCLA, Los Angeles, CA 90024, by December 30 to be considered for admission the following Fall Quarter:

- (1) The departmental Application for Admission to the Doctoral Program, available in 1285 Franz Hall.
- (2) Three letters of recommendation.
- (3) One official transcript from each college attended.
- (4) Scores from the Graduate Record Examination Aptitude Test and the Advanced Test in Psychology (taken within the last three years).
- (5) An official score report of the Miller Analogies Test. Foreign students or U.S. students currently overseas are exempt from this requirement.
- (6) The Test of English as a Foreign Language (TOEFL), required of all foreign applicants whose native language is not English.

Students who are being considered as finalists for the clinical program may be required to meet with the clinical faculty for an interview.

Incoming students are expected to have had courses equivalent to the following: (1) Psychology 41; (2) two courses from Psychology 110, 115, 120; and (3) two courses from the following alternatives: (a) Psychology 125 or 127; (b) 130; and (c) 135. If you have not had training in these areas, you will have to take appropriate coursework or examinations. In addition, it is recommended that you have adequate preparation in mathematics, physics, chemistry, and the biological and social sciences, at least to the extent of a quarter's work at the college level in each. Continuation in the Ph.D. program is contingent on successfully clearing undergraduate deficiencies by the end of the fourth quarter in residence.

## Major Fields or Subdisciplines

You may major in clinical, cognitive, developmental, learning and behavior, measurement and psychometrics, personality, physiological, or social psychology. With the exception of clinical, you may minor in any of the areas listed above, as well as in health psychology and industrial. You may petition for individualized minors or a minor in experimental psychopathology. Training is also available in community psychology.

## Foreign Language Requirement

Competence in one of the following foreign languages is required of students in the area of



measurement and psychometrics: French, German, Italian, Spanish, or Russian. In other areas, faculty advisers also have the right to require one or more foreign languages. You may petition to substitute a series of three or more quarter courses in another department for one of the languages, provided that these courses impart a relevant research skill.

## Course Requirements

**General Course Requirements:** All students, regardless of area, must fulfill the requirements listed below.

The core program must be completed within the first two years in residence. The core program includes four core courses, plus Psychology 250A, 250B, 251A-251B (and 251C, if an additional quarter is needed to complete the course).

Nine graduate courses (36 units), including Psychology 250A, 250B, 251A-251B (research project must be complete), and three of the four core courses are required for the M.A. degree. One 596 course (four units) may be applied. Courses in the 400 series may not be applied. All undergraduate deficiencies must be cleared.

By the end of the second year, you must complete at least one individual research course (596) and at least three second-year graduate courses, including one quantitative course from Psychology 238, 247A, 249, 252, 253, 254, 255, 256, 257, 258, 259, 287, 299.

During the third year, you must enroll in a minimum of three graduate-level courses, plus one quarter of course 596. At least one quarter of course 596 or 599 should be taken during the fourth year and each remaining year in the graduate program.

**Major Area Course Requirements:** Each area has its own specific requirements. A course may not be applied toward requirements in more than one major or minor area unless no other course options are designated. Requirements are as follows: *clinical:* Psychology 270A-270B-270C, 271A-271B-271C, the area's two-quarter assessment course (272 series), two additional courses in the 272 series, and at least two other advanced clinical courses outside the 272 series; *cognitive:* courses 260A-260B, plus two courses from 261, 262, 263, 264, 266; *developmental:* course 240; one course from 220A, 235, 286; one course from 200B, 261, 262, 263, 264, 266, or three modules of 205; three courses from 242A, 242B, 242C, 242E, 243A, 243B, or 244 (in addition to the quantitative courses listed under second-year requirements above, developmental majors must take a second quantitative course selected from the same list); *learning and behavior:* courses 200A, 200B, plus two courses from 204A, 204B, 208, 210, 281, 293, and Psychiatry 271; *measurement and psychometrics:* courses 249, 252, 253, 254, 255, and other measurement courses

which are regularly offered; *personality:* courses 232, 233, 235, M239, 278 (the personality major may not be taken in combination with a psychopathology minor); *physiological:* course 205 (all modules), three quarters of course 212, two approved physiological seminars, and Anatomy M206A-M206B; *social:* courses 220A-220B, C223 or 224, three social seminars taught by three different faculty members, and course 226 each quarter for the first three years of the program.

**Minor Area Course Requirements:** You must select two minor areas. These minors are normally satisfied by taking three to four specified courses. See departmental bulletins for further details.

## Qualifying Examinations

The qualifying examination consists of three separate portions. The first is a standardized examination, administered by the major area, which examines in breadth your knowledge of the major field. The second part is an individualized examination which examines in depth your knowledge of your area of specialization within the major field. The third part is the University Oral Qualifying Examination. All Ph.D. requirements listed above must be completed before this portion can be taken. After successful completion of the oral examination, you are advanced to candidacy and may begin work on the dissertation.

Contact the department for the specific examination requirements of the various areas of specialization.

## Practicum and Internship Requirements for Clinical Students

(1) At least six quarters of approved supervised preinternship practicum (Psychology 401 — 12 to 15 hours per week) are required and are usually taken in the second and third years. A concentrated summer practicum can be used to meet a portion of this requirement.

(2) The equivalent of one calendar year of supervised internship (Psychology 451) in an acceptable setting approved by the faculty, taken either full-time in one year or half-time in two years in one or two settings, is required. This can be taken in the fourth or fifth year, or after most of the research for the Ph.D. is completed. Contact the department for further information on internship assignments.

## Final Oral Examination

The final oral examination is required of all candidates for the Ph.D. degree.

## Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Psychology Clinic

The Psychology Clinic in the Department of Psychology is a training and research center in clinical psychology. It has specialized facilities for the investigation, assessment, and treatment of a variety of psychological disabilities and adjustment problems of children, adolescents, and adults.

The clinic provides a broad range of psychological services to clients, including individual, group, and family therapy, behavior modification procedures, and consultation to agencies in the community. There are a number of research programs in the clinic which reflect the current interests of the staff. Such service and research functions are basic to the professional education and training of clinical psychologists.

## Fernald Clinic and Laboratory

Established in 1921, this research and training center is one of the oldest ongoing University-based facilities focusing on psychoeducational problems. In pursuing its research and training objectives, Fernald offers a variety of services (e.g., assessment, classroom instruction, psychotherapy, and tutoring). It presently treats both children and adults of average or better intelligence who are experiencing learning and related psychobehavioral problems.

Research activity is directed toward analysis of causal factors and processes mediating intervention efficacy. The facility also provides a general research resource to faculty and students in psychology and other fields. Training opportunities include extensive clinical and research practicum and internship placements, and brief participation and observations scheduled in conjunction with seminars in various departments.

## Spanish Speaking Mental Health Research Center

The Spanish Speaking Mental Health Research Center (SSMHRC) promotes basic and applied research on the mental health needs of the Hispanic population. Supported by the National Institute of Mental Health, the SSMHRC provides an interdisciplinary research environment for scholars, students, and professionals interested in Hispanic mental health. Research projects currently under way include studies on acculturation and ethnicity, psychological assessment, health, bilingualism, community mental health, social psychology, socialization practices, and the role of the family.

## Lower Division Courses

**10. Introductory Psychology.** A general introduction including topics in cognitive, experimental, personality, developmental, social, and clinical psychology. Students participate in six hours of psychological research.

**15. Introductory Psychobiology.** Designed for nonmajors. A survey of genetic, evolutionary, physiological, pharmacological, and experiential factors affecting behavior. Using the comparative approach where appropriate, the relevance of biological mechanisms to an understanding of man and his interaction with his environment is emphasized.

**41. Psychological Statistics.** Lecture, five hours. Prerequisites: course 10, Mathematics 2, and psychology premajor standing or consent of instructor. Basic statistical procedures and their application to research and practice in various areas of psychology.

**42. Research Methods in Psychology.** (Formerly numbered 100.) Lecture, two hours; laboratory, four hours. Prerequisites: courses 10, 41 with grades of C- or better. Introduction to research methods and critical analysis in psychology. Lecture and lab topics include experimental and nonexperimental research methods, statistical design and analysis as applied to a broad range of basic and applied research issues.

**95. Lower Division Seminars.** Prerequisite: course 10. Limited to freshmen and sophomores. Intensive analysis in seminar situations of selected topics of current psychological interest. See the *Schedule of Classes* for current topics and instructors. May be repeated for credit.

## Upper Division Courses

**102. History and Systems of Psychology.** Prerequisite: senior standing or consent of instructor. A historical and systematic analysis of psychological thought and points of view.

**110. Fundamentals of Learning.** Prerequisite: course 41. Experimental findings on animal and human conditioning; retention and transfer of training; the relation of learning and motivation. The course is intended to provide an 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), and psychology major standing. Laboratory experience with techniques in the study of learning, especially with animals.

**112A. Human Learning.** Prerequisite: course 110. Acquisition, retention, and transfer of verbal and non-verbal human learning.

**112B. Theories of Learning.** Prerequisite: course 110. Critical discussion of the major theories in the light of experimental evidence.

**112C. Thinking.** Prerequisite: course 110. An analysis of experimental studies of problem solving, reasoning, insight, concept formation, and related topics.

**112E. Current Topics in Learning.** Prerequisite: course 110. A study of related issues in the psychology of learning. Topics vary with the interests of the instructor and class. May be repeated for credit by consent of instructor.

**114. Alcoholism.** Prerequisite: upper division standing. Theories and research on the impact, causes, characteristics, and treatment of alcoholism considered from a biobehavioral point of view.

**115. Physiological Psychology.** Prerequisites for majors: course 41, Biology 2; for nonmajors: Biology 5, 7, and consent of instructor. Integrative activities, receptor and effector processes in relation to neuromuscular structure and function. Facts, problems, and methods.

**115H. Physiological Psychology (Honors).** Lecture, three hours; discussion, one hour. Prerequisite: course 41. An honors course parallel to course 115.

**116. Physiological Psychology Laboratory.** Lecture, one hour; laboratory, three hours. Prerequisites: courses 41, 42, 115 (may be taken concurrently), and psychology major standing. Laboratory experience with various topics in physiological psychology.

**117. Seminar in Psychobiology.** Prerequisite: course 115. Advanced topics in brain and behavior. Only one section of course 117 may be applied as an elective toward the psychobiology major. May be repeated for credit by consent of instructor.

**118A. Comparative Psychobiology.** Prerequisite: course 115. A survey of the determinants of species-specific behavior, including genetic influences and learning.

**118B. Behavioral Pharmacology.** Prerequisite: course 115. Experimental and theoretical treatment of drug-behavior relationships. Particular emphasis on behavior and pharmacological mechanisms of drug action and drug interaction with neuronal function; drugs as tools to investigate various behavior processes such as mood, aggression, learning, and motivation, experimental studies of addiction.

**118C. Psychophysiology of Motivation.** Prerequisite: course 115. The basic psychophysiology, including brain and endocrine mechanism, involved in the control of motivation. Discussion of homeostatic drives such as hunger and thirst and nonhomeostatic drives such as reproductive behavior is emphasized.

**118D. Experimental Neuropsychology.** Prerequisite: course 115. The experimental analysis of higher brain functions. Special emphasis on attention, memory, perception, and language.

**118E. Current Topics in Physiological Psychology.** Lecture, three hours. Prerequisite: course 115 or consent of instructor. Advanced topics of current interest in physiological psychology are presented in depth. The emphasis is in bringing students to a point where they can appreciate and evaluate current research papers on the topics covered. May be repeated for credit by consent of instructor.

**M118F. Ethology: Physiology of Behavior and Learning in Animals.** (Same as Psychiatry M190.) Lecture, four hours; laboratory, one hour. Basic course for undergraduate students which integrates a systematic overview of common forms of behavioral plasticity and standard training procedures in laboratory animals (in behavioral, neurophysiological, and pharmacological studies) with a broad biological, evolutionary perspective.

**M119. Evolution of Intelligence.** (Formerly numbered 119.) (Same as Psychiatry M119.) Lecture, two hours; discussion, two hours. Prerequisites: course 15 or 115, an introductory statistics course, junior or senior standing, consent of department. Intelligence is treated as neural information-processing capacity, and its evolution in vertebrates is correlated with the evolution of enlarged brains. Quantitative approaches in evolutionary biology and the neurosciences are emphasized.

**120. Human Information Processing.** Lecture, three hours. Prerequisites: courses 10, 41. A survey of how people acquire and retain nonverbal and verbal information. Perception, attention, memory, and representation of knowledge are considered.

**121. Laboratory in Human Information Processing.** Prerequisites: courses 10, 41, 42, 120 (may be taken concurrently). Laboratory experience with methods and phenomena drawn from research on human perception, memory, and cognition.

**122. Language and Communication.** Prerequisite: course 41 or consent of instructor. A survey of language behavior, communication, and speech perception, including acquisition, sequential structure, and semantic aspects. Recent developments in linguistics, theory of information transfer, analysis and synthesis of speech. Social communication. Aphasia and speech pathology. Animal communication.

**123. Psycholinguistics.** A survey of current theory and research in psycholinguistics: the description of language in generative grammars; the acquisition of language by children; experiments on speech recognition, production, and comprehension; errors in speech perception and production; speech physiology and pathology.

**124A. Current Topics in Human Information Processing.** Lecture, two hours; discussion, one hour. Prerequisites: courses 10, 41, 120. Advanced consideration of special topics in human information processing. May be repeated for credit by consent of instructor.

**124B. Current Topics in Psycholinguistics.** Prerequisite: course 123. Advanced consideration of special topics in the psychology of language. May be repeated for credit by consent of instructor.

**125. Personality.** Prerequisite: course 41. A survey of the major topics in the field of personality, including personality theory, personality assessment, and the physiological, behavioral, and cultural role of perception, learning, and motivation in personality.

**127. Abnormal Psychology.** Lecture, three hours. Prerequisite: course 10. Study of the 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; discussion, one hour. Prerequisite: course 10. An honors course parallel to course 127.

**128. Behavioral Medicine.** Lecture, two hours; discussion, one hour. Prerequisites: courses 10, 127, junior or senior standing. Psychophysiological (psychosomatic) disorders are approached via a biopsychosocial model of disease, with emphasis on the interrelationships between physiology, personality/behavior, and social/environmental factors. Behavioral assessment and treatment approaches constitute a major focus (e.g., modifying Type A behavior, treatment of anorexia and enuresis).

**129A. Personality Measurement.** Prerequisite: course 125. The rationale, methods, and content of studies dealing with the 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. Personality Dynamics.** Prerequisite: course 125. Detailed conceptual examination of one or two areas of personality in which the main and interactive effects of personality and situational variables have been investigated. Personality as related to the study of psychological processes, particularly motivation. Includes an examination of current research literature.

**129C. Personality and Cognition.** Prerequisite: course 125. Theoretical and experimental analyses of cognitive processes such as imagery, attention, language, and memory and their implication for theories of personality.

**129D. Special Topics in Personality.** Prerequisite: course 125. Study of selected topics in the psychology of personality. Topics vary with the interests of instructor and class. May be repeated for credit by consent of instructor.

**129E. Human Sexuality.** Lecture, three hours. Prerequisite: senior psychology major standing. The course is designed to present an overview of the psychology of human sexuality. Psychological research, assessment, and therapy are described in a format which highlights their significance for understanding human sexual functioning. The ultimate objective is to articulate the psychological mechanisms underlying the expression of human sexuality.

**130. Developmental Psychology.** Lecture, three hours. Prerequisite: course 10. An elaboration of the developmental aspects of physical, mental, social, and emotional growth from birth to adolescence.

**132A. Learning Disabilities (4 or 5 units).** Lecture, three hours. Prerequisites: course 10 and upper division standing. Exploration of different orientations to persons with learning problems, emphasizing assessment and intervention approaches and the psychological impact of such approaches. Topics include the interaction of learner and environment, the sociopolitical nature of the classroom, the psychological impact of schooling, grades, and evaluations, process vs. goal focus in learning. May be taken for four or five units (fifth unit is devoted to practicum experiences involving the Fernald School). All students planning to enroll subsequently in course 132B must take the fifth-unit option. P/NP grading recommended (letter grading is required if course is to be applied toward the psychology major).

**132B. Learning Disabilities Laboratory.** Laboratory, 90 minutes; activity, seven hours. Prerequisites: courses 10, 41, 42, 132A (five units), psychology major standing, and consent of instructor. Participation in special activities at the Fernald School is made available to University students to further explore by means of a laboratory experience the topics and issues discussed in course 132A. Emphasis on experiencing and evaluating the psychological and educational impact of research, training, and service programs on learners, teachers, etc. Since a limited number of students can be accommodated, clarification of available alternatives and agreements regarding participation are worked out during the fifth-unit experience in course 132A. A commitment of eight and one-half hours per week is expected. P/NP grading recommended (letter grading is required if course is to be applied toward the psychology major).

**132C. Learning Disabilities Advanced Laboratory.** Prerequisites: courses 132A, 132B, and consent of instructor. A personalized laboratory participation experience designed to allow the advanced student to explore relevant topics in depth.

**133A. Adolescent Development.** Lecture, three hours. Prerequisite: course 130. An examination of the cognitive, social, physical, and physiological development of the adolescent.

**M133B. Exceptional Children.** (Formerly numbered 133B.) (Same as Psychiatry M133.) Prerequisite: course 130. Study of the issues and research problems in the areas of mental retardation, giftedness, learning disorders, emotional disorders, and childhood psychosis.

**133C. Psychological Development in the Adult Years.** Prerequisite: course 130 or consent of instructor. Theory and research on changes in motivation, aptitudes, and abilities as related to genetics, age, sex, and sociocultural variables.

**133D. Social and Personality Development.** Lecture, two hours; discussion, one hour. Prerequisites: courses 10, 41, 130. An 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.

**133E. Current Issues in Developmental Psychology.** Prerequisites: course 130 and upper division psychology standing. A critical examination of current issues in developmental psychology. Specific topics vary depending on the interests of the class and instructor. May be repeated by consent of instructor.

**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.** Prerequisite: course 41. The interrelationships between the individual and his social environment. Social influences on motivation, perception, and behavior. The development and change of attitudes and opinions. Psychological analysis of small groups, social stratification, and mass phenomena.

**135H. Social Psychology (Honors).** Lecture, three hours; discussion, one hour. Prerequisite: course 41. An honors course parallel to course 135.

**136A. Social Psychology Laboratory.** Lecture, two hours; laboratory, two hours. Prerequisites: courses 41, 42, 135 (may be taken concurrently), and psychology major standing. Laboratory experience with such topics as small group behavior, attitude measurement, and interpersonal influence.

**C136B. Survey Methods in Psychology.** Lecture, two hours; laboratory, two hours. Prerequisites: courses 41, 42, and psychology major standing. The nature of attitudes and opinions and their measurement by means of attitude scales and public opinion surveys. Class projects and fieldwork. Concurrently scheduled with course C223.

**137A. Group Behavior.** Lecture, three hours. Prerequisites: courses 10, 41, 135. Psychology of interdependence, group membership, leadership, and social influence.

**137B. Attitude Formation and Change.** Lecture, three hours. Prerequisites: courses 10, 41, 135. Effects of propaganda, personal influence, socialization, and social structure on private attitudes and public opinion.

**137C. Interpersonal Relations.** Lecture, three hours. Prerequisites: courses 10, 41, 135, consent of instructor. A study of the psychological facts, principles, problems, and theories concerned with interactions and relationships between persons. Focus on such phenomena as interpersonal attraction, exchange, aggression, conflict, control, power relations, and the initiation, development, and dissolution of relationships.

**137D. Introduction to Health Psychology.** Prerequisite: course 10. The course determines what areas of health, illness, treatment, and delivery of treatment can be elucidated by an understanding of psychological concepts and research, explores the psychological perspective on these problems, and considers how the psychological perspective might be enlarged and extended in the medical area.

**M137E. Work Behavior of Women and Men.** (Same as Women's Studies M137E.) Prerequisites: course 10 or Women's Studies 100 and junior or senior standing. Examination of work behavior of men and women. Topics include antecedents of career choice, job finding, leadership, performance evaluation, discrimination and evaluation bias, job satisfaction, and interdependence of work and family roles.

**137F. Special Topics in Social Psychology.** Prerequisite: course 135. Study of selected topics in social psychology. May be repeated for credit by consent of instructor.

**M138. Political Psychology.** (Same as Political Science M140.) Prerequisite: course 10. Examination of political behavior, political socialization, personality and politics, racial conflict, and the psychological analysis of public opinion on these issues.

**139. Psychology of Social Issues.** Prerequisite: course 10. An analysis of the contribution of current psychological theory and research to the understanding of selected historical, social, and political problems.

**M142. Advanced Statistical Methods in Psychology.** (Formerly numbered 142.) (Same as Psychiatry M142.) Lecture, two hours; discussion, two hours. Prerequisite: course 41. Chi square, special correlation methods, multiple regression, nonparametric methods, analysis of variance, reliability and validity.

**143. Foundations of Psychological Investigation.** Prerequisites: courses 41, 42, and psychology major standing. Outline and examination of concepts associated with psychological investigation and the interpretation of results. Readings, discussions, and reports, individual and class projects.

**144. Psychological Tests and Evaluation.** Prerequisite: course 41. Further study of the principles of measurement, stressing basic concepts. Application to problems of test construction, administration, and interpretation.

**147. Elements of Psychology of Sport.** The application of psychological theories, principles, and techniques to recreation, games, and sport. Includes current theories of the role of the brain in learning and performance of skills and the utilization of Oriental philosophies and the martial arts in Western sport.

**148. Industrial and Organizational Psychology.** Lecture, three hours. Prerequisite: course 10. Introduction to the applications of psychology in industrial and other organizations.

**150. Mathematical Models in Psychology.** Prerequisites: Mathematics 3C or 31B, Computer Science 10C or 10F or 10S, or consent of instructor. Recommended for quantitative psychology majors. Review of theoretical models and the 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.** Prerequisites: Computer Science 10C or 10F or 10S and consent of instructor. Recommended for quantitative psychology majors. Topics include hardware and software computer problems in the design, control, and analysis of experiments; programming problems arising in the evaluation of models of psychological processes of the various content areas such as learning, perception, social, personality, and clinical.

**M153. Principles of Biotechnology.** (Same as Materials Science and Engineering M107A.) Prerequisite: third-quarter sophomore or higher standing. The principles of biological science are developed in an engineering context. Emphasis on how physiological, psychological, and sociological factors affect the integration of man into environmental, informational, and managerial systems by engineering means. (F,W)

**M155. A Laboratory for Naturalistic Observations: Developing Skills and Techniques.** (Same as Anthropology M136Q and Psychiatry M112.) Prerequisite: consent of instructor. The skill of observing and recording behavior in natural settings is taught, emphasizing field training and practice in observing behavior. Group and individual projects are included. Some of the uses of observations and their implications for research in the social sciences are also discussed. (W)

**162. The Personological System of Henry A. Murray: An Undergraduate Seminar.** Lecture, two hours; discussion, one hour. Prerequisite: consent of instructor. The study of lives and the personality theory of Henry A. Murray, touching on autobiographical writings and biographical materials; personality as a dynamic system of growth and change. Creative, proactive, normal, and supernormal aspects of personality; the roles of values in the study of personality, society, and culture.

**M163. Death and Suicide: Psychological and Sociological Aspects.** (Same as Sociology M158.) Prerequisite: junior standing. The definition and taxonomy of death; the new permissiveness and taboos relating to death; the romanticization of death; the role of the individual in his own demise; the modes of death; development of ideas of death through the life span; ways in which ideas of death influence the conduct of lives; the impact of dying on the social structure surrounding the individual; preventive, interventive, and postventive practices in relation to death and suicide; partial death; megadeath; lethality; the psychological autopsy; the death of institutions and cultures. P/NP grading recommended (letter grading is required if course is to be applied toward the psychology major).

**M165. The Psychology of Gender.** (Same as Women's Studies M165.) Lecture, two hours; discussion, one hour. The course considers 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 the impact of gender on social interaction.

**168. Environmental Psychology.** Prerequisites: courses 41, 125. A 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 are considered within a unified framework.

**170A. Behavior Modification.** Lecture, three hours. Prerequisites: course 10, upper division standing. Applied behavior theory; a study of the application of principles derived from learning theory, especially modeling and reinforcement, to behavior problems of retarded and autistic children, adult psychotic disorders, reading disorders, etc. Lectures, discussions, and demonstrations.

**170B. Fieldwork in Behavior Modification.** Discussion, two hours; fieldwork, eight hours. Prerequisites: courses 41, 42, 170A, psychology major standing, and consent of instructor. Advanced fieldwork in applied behavior theory, especially to problems of retarded and autistic children, adult psychotic disorders, etc. May be repeated once for credit.

**170C. Practicum: Design and Implementation of Behavioral Interventions.** Lecture, one hour; discussion, one hour; fieldwork, six hours. Prerequisites: courses 170A or 110, 170B (two quarters), upper division psychology, quantitative psychology, or psychobiology major standing, and consent of instructor. Course focuses on the design and evaluation of behavioral interventions with developmentally delayed 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; and clinical issues. May be repeated once for credit.

**M172. The Afro-American Woman in the U.S.** (Same as Afro-American Studies M172 and Women's Studies M172.) Prerequisite: upper division standing. The course focuses on the impact of the social, psychological, political, and economic forces which impact on the interpersonal relationships of Afro-American women as members of a large society and as members of their biological and ethnic group.

**174. Interpersonal Process Analysis.** Discussion, two hours; laboratory, three hours. Prerequisites: courses 41, 42, 127, psychology major standing. An introduction to the conceptual tools for analyzing interpersonal structures and functions in goal-oriented human interaction such as psychotherapy, persuasion, courtship, etc. Class sessions integrate small group exercises with lecture and discussion (additional laboratory work to be arranged).

**175. Community Psychology.** Prerequisites: junior or senior psychology major standing and consent of instructor. The application of psychological principles to the understanding and solution of community problems. Topics include community development, community mental health problems, drugs, racism, and rehabilitation of prisoners.

**176. Experimental Community Psychology.** Lecture, three hours. Prerequisites: courses 42, 127, 175, psychology major standing, and consent of instructor. Examination and experimental application of concepts drawn from interpersonal and community psychology for understanding the behavior of individuals in structured social systems (communities, schools, mental hospitals, prisons, etc.).

**177. Counseling Relationships.** Prerequisites: courses 10, 41, 127, junior or senior standing, and consent of instructor, or junior or senior psychology major standing. The course examines conceptual and empirical foundations of psychological counseling and compares 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.** Prerequisite: upper division standing. Examination of current theories of human motivation, the experimental findings supporting the theories, and their applied value. Motivation in the classroom is emphasized, particularly the effects of success and failure on performance. Other topics include stress, conflict, frustration, and perceptions of control.

**179. Health Promotion in Minority Populations.** Lecture, three hours. Prerequisite: course 10 or consent of instructor. Designed for undergraduates interested in or considering a career in a health or mental health profession (medicine, clinical psychology, social work, nursing, public health, etc.) and for those who would deliver such health services to ethnic minority peoples.

**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 the concepts, issues, and research techniques in the area of mental retardation. Biological, psychological, and community questions concerning the causes and treatment of developmental disabilities, as well as systems for the care and training of retarded individuals, are explored. 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.

**M182A. Advanced Statistical Methods in Mental Retardation.** (Same as Psychiatry M182A.) Prerequisite: course 41. Limited to Immersion Program students. Introduction of statistical method and design in experimentation principles of statistical inference and appropriate testing methods. An introduction to the use of computers and various software packages is presented.

**M182B. Advanced Design and Statistics.** (Same as Psychiatry M182B.) Prerequisite: course M182A. Continuation of course M182A.

**M182C. Perception.** (Same as Psychiatry M182C.) Limited to Immersion Program students. Human information processing, both physical and psychological, with special emphasis on pathologies in the mentally retarded.

**M182D. Current Issues in Mental Retardation.** (Same as Psychiatry M182D.) Limited to Immersion Program students. Advanced topics in mental retardation. May be repeated for credit by consent of instructor.

**M183. Introduction to Neuroscience.** (Same as Psychiatry M183.) Limited to Immersion Program students. Gross anatomy of the human brain and spinal cord.

**185. Cognitive Science.** Lecture, three hours. Prerequisites: courses 10, 41, 42, 120, or consent of instructor. Survey of theories and methods in the study of cognition. Topics include perception, attention, mental imagery, representation, elaboration and reconstruction of information in memory: schemata and prototypes; cognitive skills, problem solving and reasoning; comprehension, construction, and transformation of natural language; neuropsychology and models of brain function; artificial intelligence, knowledge representation, programming, and thinking.

**186. Cognitive Science Laboratory.** Lecture, one hour; laboratory, three hours. Prerequisites: courses 10, 41, 42, 120, 185 (may be taken concurrently). Individual and group computer-based projects: information processing methods and analyses; experimental tests of cognitive theories and models; simulation of cognitive processes.

**190A-190B-190C. Honors Course.** Lecture, three hours. Prerequisite: psychology honors program standing. Opportunity for the development and analysis of creative ideas through conceptual or experimental research and their implementation by experimental research. Information and applications may be obtained from the Psychology Undergraduate Office, 1531 Franz Hall. Only one 190 course may be applied toward the elective course requirement for the psychology major. For the psychobiology major, only students with less than 90 units of credit by Fall Quarter 1984 and those who will not complete the "Preparation for the Major" before Fall Quarter 1985 may apply one 190 course toward the elective course requirement.

**192. Practicum in the Teaching of Psychology.** (Formerly numbered 300.) Prerequisites: upper division psychology major and department consent. Training and supervised practicum for advanced undergraduates in the teaching of psychology. Students serve as junior teaching assistants and assist in the preparation of materials and the development of innovative programs. The Psychology Undergraduate Office, 1531 Franz Hall, should be consulted for contracts and further information. Only 12 units from courses 192, 193, and 194 may be applied toward the undergraduate degree. May not be applied toward course requirements for any of the psychology majors. P/NP grading.

**193. Fieldwork in Psychology.** (Formerly numbered 350.) Seminar, two hours; fieldwork (approved community setting), six hours. Prerequisites: sophomore pre-psychology or psychology major standing and department consent. Fieldwork in applications of psychology. The Psychology Undergraduate Office, 1531 Franz Hall, should be consulted for contracts and further information. Only 12 units from courses 192, 193, and 194 may be applied toward the undergraduate degree. May not be applied toward course requirements for any of the psychology majors. P/NP grading.

**194. Research in Psychology.** (Formerly numbered 351.) Seminar, one hour; internship (approved research setting), seven hours. Prerequisites: sophomore pre-psychology or psychology major standing and department consent. Practical applications of psychology through research. The Psychology Undergraduate Office, 1531 Franz Hall, should be consulted for contracts and further information. Only 12 units from courses 192, 193, and 194 may be applied toward the undergraduate degree. May not be applied toward course requirements for any of the psychology majors. P/NP grading.

**195. Current Issues in Psychology.** Lecture, three hours. Prerequisite: junior or senior psychology major standing (some sections may require consent of instructor). A study of selected current topics of psychological interest. See *Schedule of Classes* for topics and instructors. May be repeated for credit by consent of instructor and may be applied as an elective toward the psychology major. May not be applied as an elective toward the psychobiology major.

**199. Directed Individual Research and Study.** Prerequisites: senior psychology major standing or junior psychology major standing with at least a 3.0 GPA in the major, consent of instructor and Vice Chair for Undergraduate Affairs (based on a written proposal outlining the course of study). Students should consult the Psychology Undergraduate Office, 1531 Franz Hall, for further information and approval forms. Only one four-unit 199 course in psychology may be taken per quarter and only one for a letter grade (additional 199 courses may be taken in the department). Only four units may be applied toward the elective course requirement for the psychology major. For the psychobiology major, only students with less than 90 units of credit by Fall Quarter 1984 and those who will not complete the "Preparation for the Major" before Fall Quarter 1985 may apply one 199 course toward the elective course requirement.

## 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.** Topics include human learning and conditioning and the application of learning principles in the etiology and treatment of a variety of socially significant problems. Special emphasis on systematic desensitization of anxiety states, behavior modification programs for schizophrenic children and adults, behavioral pharmacology, control of autonomic behavior, among others.

**204A-204B. Seminar in Critical Problems in Learning.** Each course may be taken independently and in any order. Critical problems are drawn from the following:

**204A. Psychophysiology of Attention and Learning.** The study of research and theories concerned with the psychophysiology of attention and learning primarily in humans. Concepts and areas include the orienting reflex, dominant focus, classical conditioning, and their implications for the psychophysiology of psychopathology and psychotherapy.

Mr. Maltzman

**204B. Theories of Learning.** Prerequisite: course 200A or equivalent. Critical discussion of the major theories in learning and their current status.

**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.

Mr. Garcia, Mr. Lovaas

**205A-205B. Physiological Correlates of Behavior.** Lecture, three hours. The physiological substrate of behavior and the neural and endocrine mechanisms which underlie psychological phenomena and behavior. New concepts of structural and functional organization in the nervous system and the ways these relate to behavioral and neurological dysfunction.

**206. Psychophysiology of Brain Function.** Modern concepts of the 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.

Mr. Beatty

**207A-207B-207C. Seminar in Physiological Psychology.** Prerequisite: course 115 or equivalent.

Mr. Butcher, Mr. Ellison, Mr. Krasne

**208. Seminar in Comparative Psychobiology.**

Mr. Arnold

**210. Comparative Psychobiology.** Prerequisites: course 115 or equivalent and consent of instructor. A survey of the determinants of species-specific behavior, including genetic influences and learning.

Mr. Arnold

**212. Evaluation of Research Literature in Physiological Psychology (1 unit).** Discussion, 90 minutes. Prerequisite: consent of instructor. Papers of current interest are presented by members of the seminar and their significance and methodology discussed and criticized in depth. May be repeated for credit.

**218A-218B. Advanced Industrial Psychology.** Selection and training of employees, factors influencing efficiency of work.

Mr. Barthol

**219. Special Problems in Industrial Psychology.**

Mr. Barthol

**220A-220B. Social Psychology.** Prerequisite: course 135 or equivalent. An intensive consideration of the concepts, theories, and major problems in social psychology.

**221. Seminar in Attitude Formation and Change.** Discussion, three hours. Prerequisites: courses 220A-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.

Mr. Gerard

**222A-222B. Seminar in Group Behavior.** Discussion, three hours. Prerequisites: courses 220A-220B or consent of instructor. Special topics in interpersonal relations and group dynamics. Power control, structure and organization, group functioning.

Mr. Kelley, Mr. Raven

**C223. Survey Research in Psychology.** A critical review of the theory and practice of large-scale sampling, measurement, and analysis of beliefs, attitudes, and other psychological variables. Concurrently scheduled with course C136B.

**224. Experimental Methods in Social Psychology.** Lecture, three hours. Prerequisites: courses 220A-220B or consent of instructor. A critical review of laboratory techniques and problems of experimental control and measurement encountered in research on social psychological phenomena.

Mr. Collins

**225. Seminar: Critical Problems in Social Psychology.** Discussion, three hours. Prerequisites: courses 220A-220B or consent of instructor. May be repeated for credit by consent of instructor.

**226. Current Literature in Social Psychology (2 units).** Recent and current research papers in social psychology are presented by members of the seminar and their significance and methodology discussed and criticized in depth. May be repeated for credit. S/U grading.

**227. Health Psychology.** Lecture, two hours; discussion, one hour. Prerequisite: undergraduate degree or training in psychology. Explores the psychological and social factors involved in the etiology of illness, the treatment and course of illness, the long-term care and adjustment of the chronically ill or disabled, and the practice of institutional health care and self-care.

Ms. Taylor

**M228. Seminar in Political Psychology.** (Same as Political Science M224G.) Discussion, three hours. Prerequisites: courses 220A-220B or consent of instructor. Examination of political behavior, political socialization, personality and politics, racial conflict, and the analysis of public opinion on these issues.

Mr. Sears

**229A. Issues in the Social Development of the Minority Child.** Prerequisites: graduate standing and consent of instructor. A critical evaluation and integration of existing research on the social psychological development of the minority child. The seminar focuses on the socialization of cognitive and personality style, with the goal of empirically clarifying the issues raised in this area of developmental study.

Mr. Myers

**M230A-M230B. Seminar in Behavioral Biology.** (Same as Anthropology M228A-M228B, Biology M252A-M252B, Education M229A-M229B, Physiology M252A-M252B, and Psychiatry M291A-M291B.) Discussion, six hours. Prerequisite: consent of instructor. Basic seminar for graduates interested in behavioral biology. An interdisciplinary course dealing with behavioral research in anthropology, biology, psychology, and the medical sciences. Proximate causation, development, and evolution in animal behavior. Physiology and the organization of behavior. Vertebrate social organization. Animal communication. The application of natural selection theory to human social behavior. In Progress grading.

**232. Human Sexuality.** Lecture, three hours. Prerequisite: graduate standing. The course has been designed to teach students how to carry out research on human sexual behavior. The contents include theory construction, scale development, physiological and endocrinological implications, radio-immunoassay (measuring hormones in blood sample), ethical issues, methodological and statistical considerations, the measurement of sexual arousal, fantasy, and sexual dysfunction therapy. The format is discussion-oriented, with emphasis on operationalizing predictions concerning human sexual functioning.

Mr. Abramson

**233. Seminar in Environmental Psychology.** Prerequisites: courses 235, 250A, 250B. Critical review of work in environmental psychology designed to identify basic dimensions for the analysis of man-environment relationships. The framework of analysis uses 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 the emotional response dimensions are employed to explain within-individual differences in response to the same environment over time or between-individual differences to the same situation. Review of literature relating information rate from environments to arousal and preferences for those environments.

Mr. Mehrabian

**235. Personality.** A survey of cognitive, analytic, and learning theory approaches to the study of personality. Emphasis on the intensive exploration of selected concepts and related research.

**238. Seminar in Mental Measurements.**

Mr. Woodward

**M239. Personality, Motivation, and Attribution.** (Same as Education M215.) Examines 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 also are stressed.

**240. Developmental Psychology.** A consideration of the special problems of the control and measurement of the behavior of children as well as the young of other organisms, with emphasis on providing basic research relevant to both clinical and research work with children.

Ms. Greenfield, Mr. Jeffrey

**242A-242F. Seminar in Developmental Psychology.** Lecture, one hour; discussion, two hours. Prerequisites: course 240 or equivalent and consent of instructor. Each course may be taken independently and may be repeated for credit:

**242A. Perceptual Development.**

**242B. Cognitive Development.**

Ms. Greenfield, Mr. Jeffrey

**242C. Socialization.**

**242E. Cognitive Factors in Learning Disorder.**

Mr. Adelman

**242F. The Development of Language and Communication.**

Ms. Greenfield, Mr. Padilla



**243A-243B. Seminar in Practical and Societal Issues in Developmental Psychology.** Prerequisites: course 240 or equivalent and consent of instructor. Socialization processes in human development and implication for social-political, educational, research issues, values, and societal change. In Progress grading. Mr. Nakamura

**244. Critical Problems in Developmental Psychology.** Prerequisites: course 240 or equivalent and consent of instructor. The course is concerned with current problems and varies depending on the interest of the class and instructor. May be repeated for credit by consent of instructor.

**M245. Personality Development and Education.** (Same as Education M217C.) A review of research and theory of critical content areas in personality development that bear on school performance: self-concept, aggression, sex differences, empathy, and other social behaviors; review of the status of emotional behavior in personality theory and development. Ms. Feshbach

**M246. Psychological Aspects of Mental Retardation.** (Same as Psychiatry M246.) Prerequisite: consent of instructor. Discussion of the 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). Mr. Tymchuk

**247A-247B. Theory and Methods of Computing in the Behavioral Sciences:**

**247A.** Acquisition and analysis of data, on-line analysis of behavior, and control of experiments in the diverse content areas of psychology (e.g., perception, social, clinical, personality, and physiological). Mr. Carterette

**247B.** Prerequisite: course 247A or consent of instructor. Topics in human problem solving, information processing, automata, language cognition, and problems arising in computer simulation of behavior. Each student undertakes a substantial project. Mr. Carterette

**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. Mr. Woodward

**250A. Advanced Psychological Statistics.** Review of fundamental concepts. Basic statistical techniques as applied to the design and interpretation of experimental and observational research. Mr. Wickens, Mr. Woodward

**250B. Advanced Psychological Statistics.** Advanced experimental design and planning of investigations. Mr. Wickens, Mr. Woodward

**251A-251B-251C. Research Methods.** Limited to psychology graduate students. Students design and conduct original research projects under the supervision of the instructor in charge. It is anticipated that many students will complete their project in two quarters (normally three quarters are allowed). S/U grading (course 251A only).

**252. Multivariate Analysis.** Prerequisites: courses 250A, 250B. Introduction to the analysis of data having multiple dependent measures. Topics include multivariate distributions, principal components analysis, multiple regression, canonical correlation, discriminant analysis, and the multivariate analysis of variance. Example applications are drawn from a variety of psychological areas of research, including clinical, cognitive, physiological, and social. Computer implementation includes APL and standard statistical packages. Mr. Woodward

**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. Mr. Comrey

**254. Seminar in Psychological Scaling.** Theory of measurement, law of comparative judgment, methods of unidimensional scaling, multidimensional scaling, and related topics of current interest. Mr. Holman

**255. Quantitative Aspects of Assessment.** Fundamental assumptions and equations of test theory. Current problems in assessment. Mr. Woodward

**256. Seminar in Critical Problems in Psychological Measurement.** Critical examination of issues in the major approaches to psychological measurement; relation in psychological methods and data to a general theory of measurement. Mr. Mount

**257. Multivariate Analysis with Latent Variables.** Prerequisite: consent of instructor. Introduction to models and methods for the 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 the analysis of moment structures. Measurement models such as confirmatory, higher order, and structured-means factory analytic models. Structural equation models, including path and simultaneous equation models. Parameter estimation, hypothesis testing, and other statistical issues. Computer implementation. Applications. Mr. Bentler

**258. Special Problems in Psychological Statistics.** Prerequisites: courses 250A and 250B, or consent of instructor. Special problems in psychological statistics and data analysis are examined. Mr. Wickens

**259. Quantitative Methods in Cognitive Psychology.** Prerequisites: courses 250A and 250B, or consent of instructor. The course considers a 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. Mr. Wickens

**260A-260B. Proseminar in Cognitive Psychology.** 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 the 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? Mr. Thomas

**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, the structure and organization of short- and long-term memory. Mr. Bjork

**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. Ms. French, Mr. MacKay

**264. Judgment and Decision Processes.** Lecture, three hours. Prerequisite: consent of instructor. Contemporary theory and research in judgment and decision processes: psychophysical scaling, contextual effects on rating scales, models for the analysis of value decisions. Mr. Parducci

**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. Central theme is the representation of cognitive structures and higher-level processes. Specific areas include perception, learning and memory, problem solving, and reasoning. Relationships to artificial intelligence are considered. Mr. Richards, Mr. Wickens

**268A-268E. Seminar in Human Information Processing.** Seminar, three hours. Prerequisite: consent of instructor. Topics vary with the interests of the instructor. Each course may be taken independently and may be repeated for credit:

**268A.** Perception. Mr. Thomas

**268B.** Human Learning and Memory. Mr. Bjork

**268C.** Judgment and Decision Processes. Mr. Parducci

**268D.** Language and Thought. Mr. MacKay

**268E.** Human Performance. Mr. Beatty, Mr. Carterette

**269. Seminar in Cognitive Psychology.** Seminar, three hours. Prerequisite: consent of instructor. A 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.** Corequisites: courses 271A-271B-271C. Limited to graduate students in clinical psychology:

**270A.** Analysis of phenomenological, theoretical, and research issues regarding the 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. The course provides supervised exposure to the psychological attributes of psychopathology and the procedures for psychological assessment, intervention, and research with clinical populations. Experience is closely coordinated with the content in courses 270A-270B-270C.

**272A-272F. 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. A course in the 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. Mr. Baker

**272B.** Psychotherapy with Adults.

**272C.** Clinical Interventions for Psychological Problems of Children.

**272D.** Family Therapy and Family Dynamics.

**272E.** Special Problems.

**272F.** Advanced Clinical Psychological Methods: Behavior Modification with Adults. Prerequisites: second-year graduate standing in clinical psychology. The course focuses on current cognitive behavior modification principles and techniques. Major conceptual issues are analyzed, and specific techniques are demonstrated and practiced by students to cover a range of adult problems such as depression, stress and anxiety, anger management, assertion problems. Ms. Hammen, Ms. Mays

**273. Interpersonal Communication Seminar.** Prerequisite: course 282 or consent of instructor. Each student is supported in developing a design for studying help-oriented interchange in community and clinical settings. Initial focus on measuring interpersonal deficit, response styles, and training effects. Mr. Goodman

**274A-274B. Group Therapy Dynamics.**

**M275. Family Process: Psychological and Social Perspectives on the Family.** (Same as Social Welfare M275.) The course reviews various theoretical perspectives applicable to the analysis of family structure and dynamics. Critical issues in the application of family constructs to clinical problems receive particular attention. Mr. Cohen, Mr. Goldstein



**276. Clinical Approaches to Children with Learning and Related Behavior Problems.** Lecture, three hours; discussion, one hour. Prerequisite: doctoral standing. The focus is on 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 are offered to illustrate course content and provide opportunities to improve research and clinical competence.

Mr. Adelman

**277. Advanced Clinical Assessment.** The course covers projective techniques, clinical interpretation, case studies, the psychological test battery, psychopathology, and application of assessment to problems in psychotherapy.

**278. Seminar in Motivation, Conflict, and Neurosis.** Mr. Feshbach

**279. Seminar in Research in Psychopathology.**

**281. Seminar in Behavior Therapy.** Mr. Lovass

**282. Interpersonal Forms Analysis of Human Interaction Structures.** Conceptual and experimental study of six response modalities common to psychotherapy and everyday interaction: questions, silences, advisement, interpretation, self-disclosure, and reflection. Laboratory work is performed in conjunction with lecture and seminar sessions.

Mr. Goodman

**283. Psychopathology.** A survey of the dominant psychological attributes of particular forms of psychopathology, including an analysis of the status of various theories concerned with the etiology and mediating mechanisms of personality, neurotic, schizophrenic spectrum, and affective disturbances.

**284. Seminar in Clinical Psychology and Communication.**

**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.

Mr. Broen

**287. Critical Problems in Clinical Research Methodology.** Prerequisites: courses 250A, 250B. Special problems of measurement and design in clinical research are examined.

Mr. Christensen

**288. Seminar in Research in Personality (1 unit).** Prerequisite: graduate standing in personality. Required of all students majoring in personality. The course covers current research, theory, and professional issues within the area of personality. A brown-bag format is utilized to foster intellectual exchange and discussion. Students make at least one presentation per quarter and participate in discussions with faculty and guest lecturers.

**290. History of Psychology.** Philosophical and historical context of contemporary psychology. Major trends from the 19th century to contemporary issues are considered.

Mr. Maltzman

**291. Principles of Behavioral Pharmacology.** Prerequisite: consent of instructor. Intensive analysis of drug, brain, and behavior relationships. Discussion of the 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 the study of drug addiction, schizophrenia, and other behavioral processes, both normal and pathological.

Mr. Butcher

**292. Biobehavioral Mechanisms of Stress and Disease.** Lecture, three hours. Prerequisite: graduate standing in psychology or consent of instructor. The course examines the behavior-physiology interactions of some major bodily systems: the nervous, cardiovascular, gastrointestinal, and endocrine systems. Usual and altered states of these systems (e.g., stress) are examined as these can promote permanent tissue injuries, disease, or improved bodily function, health enhancement.

Mr. Castro, Mr. Grijalva, Ms. Morell

**293. Behavioral and Psychophysiological Problems of Alcoholism.** Prerequisite: consent of instructor. Behavioral and psychophysiological characteristics of alcoholism are reviewed, along with theories concerning their etiology and treatment. Experimental approaches are emphasized.

Mr. Maltzman

**298. Special Problems in Psychology.** Content depends on the interests of the 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 the measurement of change are highlighted. Course includes some experience in analysis of actual data sets.

Mr. Kaye

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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 (4 or 8 units).** Prerequisites: courses 271A-271B-271C. Students on practicum assignments are required to register for this course each quarter (except by consent of clinical program committee).

**402. Fieldwork in Speech Pathology (4 or 8 units).** Prerequisite: consent of instructor. Practical work in hospitals and clinics in diagnostic testing and psychotherapy with speech disorders.

**410A-410B-410C. Clinical Teaching and Supervision.** Prerequisites: completion of Ph.D. comprehensive examinations, advancement to candidacy or preparation for dissertation research actively underway, and consent of instructor and clinic steering committee. Study and practice of the knowledge, concepts, and theories on teaching and supervision of applied clinical psychology.

Ms. Jacobs, Mr. Nakamura

**420A-420B. Health Psychology Practicum (2 units each).** Prerequisite: graduate standing. The course determines what areas of health, illness, treatment, and delivery of treatment can be elucidated by an understanding of psychological concepts and research, explores the psychological perspective on these problems, considers how the psychological perspective might be enlarged and extended in the medical area, and through a practical field placement helps the student apply the knowledge acquired in class to research observation and/or clinical work in the field.

Ms. Taylor

**425. Health Psychology Lecture Series.** Clinicians and researchers in health psychology from the 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.

Ms. Taylor

**451. Internship in Clinical Psychology (4 or 8 units).** Prerequisite: course 401. Limited to students who have successfully completed departmental qualifying examination. May be repeated for credit.

**454. Internship in Industrial Psychology (2 to 4 units).** Mr. Barthol

**495. Presentation of Psychological Materials.** Supervised practicum in undergraduate teaching. Students serve as discussion section leaders in selected undergraduate courses.

**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. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. S/U grading.

**596. Directed Individual Research and Study in Psychology (2 to 12 units).** One 596 course is required during the 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.)

**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 the examinations.

**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.

## Religion, Study of (Interdepartmental)

5387 Bunche Hall, 825-3780, 825-4601

### Professors

Marilyn Adams, Ph.D. (*Philosophy*)  
Robert Merrihew Adams, Ph.D. (*Philosophy*)  
Rogers Albritton, Ph.D. (*Philosophy*)  
Amin Banani, Ph.D. (*Persian and History*)  
Arnold J. Band, Ph.D. (*Hebrew*)  
Robert L. Benson, Ph.D. (*History*)  
Kees W. Bolle, Ph.D. (*History*), Chair  
Seeger A. Bonebakker, Ph.D. (*Arabic*)  
Giorgio Buccellati, Ph.D. (*History*)  
John Callender, Ph.D. (*Egyptology*)  
Claus-Peter Clasen, Ph.D. (*History*)  
Herbert A. Davidson, Ph.D. (*Hebrew*)  
Vinton A. Dearing, Ph.D. (*English*)  
Patrick K. Ford, Ph.D. (*English*)  
Amos Funkenstein, Ph.D. (*History*)  
Marija Gimbutas, Ph.D. (*Archaeology*)  
Richard Hovannisian, Ph.D. (*History*)  
Daniel W. Howe, Ph.D. (*History*)  
Henry Ansgar Kelly, Ph.D. (*English*)  
Bengt T. M. Löfstedt, Ph.D. (*Medieval Latin*)  
Jacques Maquet, Ph.D. (*Anthropology*)  
Afaf Marsot, D.Phil. (*History*)  
Ronald J. Mellor, Ph.D. (*History*)  
Ismael Poonawala, Ph.D. (*Arabic*)  
Merrick Posnansky, Ph.D. (*History and Anthropology*)  
Douglass Price-Williams, Ph.D. (*Anthropology and Psychiatry*)  
Jaán Puhvel, Ph.D. (*Classics and Indo-European Studies*)  
Yona Sabar, Ph.D. (*Hebrew*)  
Hartmut E. F. Scharfe, Ph.D. (*East Asian Languages and Cultures*)  
Hanns-Peter Schmidt, Ph.D. (*Indo-Iranian*)  
Stanislav Segert, Ph.D. (*Northwest Semitics*)  
Johannes Wilbert, Ph.D. (*Anthropology*)  
Milton V. Anastos, Ph.D., Emeritus (*Classics*)  
Ensho Ashikaga, M.Litt., Emeritus (*East Asian Languages and Cultures*)  
Kenneth K.S. Chen, Ph.D., Emeritus (*East Asian Languages and Cultures*)  
Hilda Kuper, Ph.D., Emeritus (*Anthropology*)  
Gerhart B. Ladner, Ph.D., Emeritus (*History*)  
William A. Lessa, Ph.D., Emeritus (*Anthropology*)

### Associate Professors

William R. LaFleur, Ph.D. (*East Asian Languages and Cultures*)  
Steven Lattimore, Ph.D. (*Classics*)  
Michael G. Morony, Ph.D. (*History*)  
Philip L. Newman, Ph.D. (*Anthropology*)  
Herbert E. Plutschow, Ph.D. (*East Asian Languages and Cultures*)

### Assistant Professors

Edward G. Berenson, Ph.D. (*History*)  
Ruth Bloch, Ph.D. (*History*)  
Robert A. Hill, M.Sc. (*History*)  
Deborah Klimburg-Salter, Ph.D. (*Art History*)  
Deborah Lipstadt, Ph.D. (*Jewish Studies*)

**Lecturer**David L. Lieber, D.H.L. (*Hebrew*)**Adjunct Associate Professor**S. Scott Bartchy, Ph.D. (*History*)**Scope and Objectives**

The UCLA major in the study of religion has a twofold purpose. In the first place it 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. In the second place, the program asks the student to select one particular religious tradition for study in greater depth. Cohesion and integrity in the program are furthered by courses dealing with philosophical problems in religion and with general anthropological reflections.

The program requires one year of language study which should be related to the major tradition of concern. This minimum requirement will allow every student to develop some idea of the basic problems in understanding religious texts. Students contemplating graduate study will generally do more than fulfill the minimum requirement.

**Bachelor of Arts Degree****Preparation for the Major**

*Required:* Anthropology 22; History 4; Philosophy 2; two courses from History 1A, 1B, 1C, 9A, 9B, 9C, 9D, 10A, 10B.

**The Major**

*Required:* A minimum of 13 upper division courses and three related courses in foreign language. These must include History 193A or 193E; Anthropology 133R or 156; two courses from Philosophy 175, 177B or 195, 193.

In addition, you must select one of the nine groups below as your main area of study and take three courses in that main area and three related courses in foreign language as indicated. (The language courses may be either upper or lower division. If any requirements have been satisfied prior to admission to the program, they will be honored on the recommendation of the appropriate instructor. Another language pertinent to your main area may be substituted with the consent of the committee in charge of the major. Among these languages are Hittite, Ugaritic, Syriac, Coptic, Persian, Armenian, French, German, Irish, Welsh.)

You must also select six courses in traditions chosen from at least two groups outside your main area of study, excluding foreign language courses.

**Group 1: Ancient Near East and Eastern Europe**—Three courses from History 193D, Ancient Near East 130, 150A, 150B, 150C,

170, Indo-European Studies 131, 132, Iranian 170; three courses in either Ancient Egyptian or Akkadian.

**Group 2: Indo-European Traditions**—Three courses from English M111D, M111E, History 193B, Old Norse Studies 140, Iranian 170, Slavic M179; three courses in Sanskrit, Latin, or Greek.

**Group 3: Greece and Rome**—Three courses from Classics 161, 162, 166A, 166B, History 197 (Roman History: Christianity and Imperial Rome); three courses in either Latin or Greek.

**Group 4: Israel and Judaism**—Three courses from English 108A, History M191A, M191B, 192A, 192B, Hebrew 120, 130, 135, 220, Jewish Studies 110, 150A, 150B, 151A, 151B, 199, Ancient Near East 170, 171; three courses in Hebrew.

**Group 5: Christianity**—Three courses from Philosophy 105, 106, 107, English 108B, History 116A, 116B, 119, 120, 121A, 121B, 125B, 150A, 150B, 150C, 194A, 194B, Ancient Near East 170, Classics M170A; three courses in either Latin or Greek.

**Group 6: Islam**—Three courses from Philosophy 104, History 106A, 107A, 107B, Arabic 150A, 150B, Iranian 150A, 150B; three courses in Arabic.

**Group 7: South Asia**—Three courses from History 188A, 193B, 193C, 197 (South Asian Religions), East Asian Languages and Cultures 167, Iranian 170; three courses in Sanskrit.

**Group 8: Far East**—Three courses from History 193C, East Asian Languages and Cultures 172, 173, 174; three courses in Sanskrit, Chinese, or Japanese.

**Group 9: Traditional and Nonliterate Cultures**—Three courses from Anthropology 171, 174P, 177, Folklore and Mythology M111, M123A, M125, M129, 130, History 157A, 157B, 157C, Linguistics M150; three courses in a language selected in consultation with an instructor in these areas.

**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 will be taken in the senior year and will count as part of the regular requirement of 13 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 Kees Bolle at the program address.

# Romance Linguistics and Literature (Interdepartmental)

359 Royce Hall, 825-0237

**Professors**

Stephen R. Anderson, Ph.D. (*Linguistics*)  
Shirley L. Arora, Ph.D. (*Spanish*)  
José R. Barcia, Lic. F. y L. (*Spanish*)  
Rubén A. Benítez, Ph.D. (*Spanish*)  
Marc Bensimon, Ph.D. (*French*)  
Franco Betti, Ph.D. (*Italian*)  
Giovanni Cecchetti, Ph.D., Dottore in Lettere (*Italian*)  
Fredi Chiappelli, Dottore in Lettere (*Italian*)  
Margherita Cottino-Jones, Ph.D., Dottore in Lettere (*Italian*)  
Eric Gans, Ph.D. (*French*)  
Joaquín Gimeno, Ph.D. (*Spanish*)  
Hassan el Nouty, Docteur ès Lettres (*French*)  
Claude L. Hulet, Ph.D. (*Spanish and Portuguese*)  
Carroll B. Johnson, Ph.D. (*Spanish*)  
Bengt T. M. Löfstedt, Ph.D. (*Classics*)  
Gerardo Luzuriaga, Ph.D. (*Spanish*)  
C. B. Morris, Litt.D. (*Spanish*)  
C. P. Otero, Ph.D. (*Spanish and Romance Linguistics*)  
Stanley L. Robe, Ph.D. (*Spanish*)  
Edward F. Tuttle, Ph.D. (*Italian*)  
Pier-Maria Pasinetti, Ph.D., Dottore in Lettere, Emeritus (*Italian*)

**Associate Professors**

George D. Bedell, Ph.D. (*Linguistics*)  
Patrick Coleman, Ph.D. (*French*)  
E. Mayone Dias, Ph.D. (*Portuguese*)  
Susan Plann, Ph.D. (*Spanish*)  
A. Carlos Quicoli, Ph.D. (*Portuguese and Romance Linguistics*), Chair  
Richard M. Reeve, Ph.D. (*Spanish*)  
Enrique Rodríguez-Cepeda, Ph.D. (*Spanish*)  
A. John Skirius, Ph.D. (*Spanish*)  
Paul C. Smith, Ph.D. (*Spanish*)  
Stephen D. Werner, Ph.D. (*French*)

**Assistant Professors**

Jean-Claude Carron, Ph.D. (*French*)  
Shuhsi Kao, Ph.D. (*French*)  
Sara Melzer, Ph.D. (*French*)  
James Reid, 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.

## Master of Arts Degree

### Admission

The UCLA Bachelor of Arts degree in French, Italian, Portuguese, or Spanish, or the equivalent, is required. Applicants are expected to have a grade-point average of at least 3.4 in upper division courses, especially in those judged germane to their proposed program. Three letters of recommendation and the Aptitude Test of the Graduate Record Examination are also required. Students admitted from elsewhere whose preparation is considered deficient in view of their 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. Students who know only the language of their major 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.

### Foreign Language Requirement

In addition to the Romance language of major interest and that of minor interest, you are required to take either Latin 3 or the equivalent, or Italian 3 or the equivalent (provided Italian is not your major), whether you specialize in linguistics or in literature. The language requirement must be completed no later than the quarter before you expect to receive your degree.

### Course Requirements

Twelve courses are the minimum requirement, of which six courses (at least five of them graduate) must be in your 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 literature. The remaining three courses should be selected in consultation with the guidance committee so as to be logically supportive of your major field of study. Linguistics 100 is required as a prerequisite of all students majoring in the linguistics field. Up to eight units of course 596 may be applied toward the M.A. Courses 597 and 598 may not be applied toward the degree.

### Teaching Experience

Teaching experience is not required but is desirable. Consult the Chair regarding the availability of teaching assistantships.

### Thesis Plan

The program favors the comprehensive examination plan, but will approve M.A. theses for

exceptionally well-qualified students under special circumstances. You may petition for authorization to write an M.A. thesis only after completion of six courses applicable toward the degree. It is your responsibility to choose an appropriate topic and find a professor to direct the thesis. After completion of the thesis, you must pass a two-hour oral examination testing your knowledge of the field of the thesis and your general competence. Only those students who attain a 3.5 grade-point rating in the examination will be encouraged to proceed to candidacy for the Ph.D. degree.

### Comprehensive Examination Plan

The comprehensive examination is administered by three members of the guidance committee, appointed by the 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, will be given each quarter two weeks prior to final examinations. If you fail the examination or any part thereof, you may retake the failed portions once when the examination is next regularly offered. Only those students who attain a high pass grade on the master's examination will be automatically admitted to the Ph.D. program.

## Ph.D. Degree

### Admission

The UCLA Master of Arts degree in Romance Linguistics and Literature or the UCLA M.A. in French, Italian, Luso-Brazilian Language and Literatures (Portuguese), or Spanish, or the equivalent, is required. Three letters of recommendation and the Graduate Record Examination Aptitude Test are also required.

Entering students whom the Chair determines to have obtained the M.A. with distinction are automatically eligible for admission to the Ph.D. program; those whose M.A. program registers deficiencies in scope or quality will be required to complete three graduate courses from the offerings of the sponsoring departments.

Following the determination of your eligibility, your guidance committee will be formed. You will then meet as soon as possible with your committee to work out your 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 you have met with this committee and placed yourself under its direction, you are not official in the Ph.D. program.

### Major Fields or Subdisciplines

The program recognizes two fields of specialization: linguistics and literature.

*Linguistics:* Major fields include (1) the present-day grammar of the Romance language of

your 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 your 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:* Major fields include 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 selected 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.

### Foreign Language Requirement

In addition to the minimum of two Romance languages, Latin 3 or Italian 3, or the equivalent, is required of all students in the program. Students selecting option 2 or 3 in linguistics or option 1 in literature must also take German, whereas those selecting option 1 in linguistics or option 2 or 3 in literature must take another foreign language to be determined by the guidance committee. In non-Romance languages, you must pass the Educational Testing Service (ETS) test. In languages where there is no such test, passing a departmental examination fulfills the requirement. This requirement may also be met by completing two years of college-level courses in the language with a grade of B or better or by fulfilling the foreign language requirement in connection with an M.A. obtained elsewhere. The foreign language requirement must be satisfied no later than the quarter before the qualifying examinations are taken.

### Course Requirements

In each of the two specializations (linguistics or literature) the Ph.D. program consists of a major and two minors. These courses (a minimum program) will be 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 ten 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 100 is required as a prerequisite of all students majoring in the linguistics field.

## Teaching Experience

Teaching experience is not required but is desirable. Consult the Chair regarding the availability of teaching assistantships.

## 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 your 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.

## Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Graduate Courses

**211. Comparative Romance Syntax.** Lecture, three hours. Prerequisite: French 204A, Portuguese 204A, Spanish 204A, or consent of instructor. Comparative study of syntactic processes in Romance languages. Investigation of the parameters underlying linguistic variation. Mr. Otero, Mr. Quicoli

**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 the M.A. degree requirements. S/U grading.

**599. Research for Ph.D. Dissertation (4 to 8 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. Bibliography

### Linguistics Courses

**Grammatical Theory: Linguistics** 201A. Phonological Theory: Current Issues  
201B. Phonological Theory in the 20th Century  
206A. Syntactic Theory: Current Issues in Formal Syntax

206B. Syntactic Theory: Current Issues in Functional and Typological Approaches to Syntax

### Development of the Romance Languages

**Hispano-Romance: Spanish** M203A-M203B. The Development of the Portuguese and Spanish Languages

**Indo-European: Indo-European Studies** 210. Indo-European Linguistics: Advanced Course

280A-280B. Seminar in Indo-European Linguistics

**Italic Dialects: Latin** 242. Italic Dialects and Latin Historical Grammar

**Italo-Romance: Italian** 259A. History of the Italian Language

**Latin History: Latin** 240. History of the Latin Language

**Medieval Latin: Latin** 231A-231B. Seminar in Medieval Latin

**Northern Gallo-Romance: French** 204A. Phonology and Morphology from Vulgar Latin to French Classicism

204B. Syntax and Semantics from Vulgar Latin to French Classicism

**Paleography: History** 219A. Paleography I

219B. Paleography II

**Romance Dialectology: Italian** 259C. Italian Dialectology

**Spanish** 209. Dialectology

**Romance Linguistics: Linguistics** 225G. Linguistic Structures

**Southern Gallo-Romance: French** 215E. The Medieval Language and Literature: Provençal Poetry

**Vulgar Latin: Latin** 232. Vulgar Latin

### Studies in the History of the Romance Languages

**Gallo-Romance: French** 215A. The Medieval Language and Literature: Old and Middle French

**Hispano-Romance: Spanish** M251. Studies in Galego-Portuguese and Old Spanish

**Italo-Romance: Italian** 210A. Early Italian Literature: The Origins of Italian Language and Early Texts  
259A-259B-259C. Studies in the History of Italian Language

### Synchronic Linguistics

**Advanced Grammar: French** 201A. Theme

201B. Version

201C. La Dissertation Française

201D. Problems of French Literary Composition

206. French Linguistics

**Italian** 259B. The Structure of Modern Italian

**Portuguese** 204A-204B. Transformational Grammar

206. Portuguese Linguistics

**Spanish** 204A-204B. Transformational Grammar

206. Linguistics

**Studies in Linguistics and Dialectology: French**

261. Studies in French Linguistics

262. Studies in Stylistics

**Spanish** 256A-256B. Studies in Linguistics and Dialectology

### Literature Courses

**French Literature: French** 205A-205D. The Intellectual Background of French Literature

**History of Ideas: French** 260A-260B. Studies in the History of Ideas

**Literary Criticism: French** 203A-203B-203C. French Literary Criticism

258A-258B. Studies in Literary Criticism

**Italian** 205A-205B. Methods of Literary Criticism

**Spanish** M201. Literary 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** 214D. Italian Literature of the 14th Century: Petrarca

251. Seminar on Petrarca

**Studies in Early Romance Literature: French** 215B-215F. The Medieval Language and Literature

250A-250B. Studies in Medieval Literature

**Italian** 210B-210C. Early Italian Literature

214A-214G. Italian Literature of the 14th Century

215A-215B-215C. Italian Literature of the 15th Century

250A-250D. Seminar on Dante

252. Seminar on Boccaccio

**Portuguese** C242A. Medieval Portuguese Literature

**Spanish** 222. Medieval and Renaissance Poetry

223. Medieval and Renaissance Prose

262A-262B-262C. Studies in Medieval and Renaissance Literature

### Modern Romance Literature

**Genre Studies: Portuguese** 252A-252B-252C. Special Studies in Portuguese Literature

253A-253B-253C. Special Studies in Brazilian Literature

**Studies in the 18th Century: French** 218A-218D. The 18th Century

254A-254B. Studies in the 18th Century

**Italian** 218A-218E. Italian Literature of the 18th Century

256A-256B. Seminar on the 18th Century

**Portuguese** C242C. 18th- and 19th-Century Literature

C243B. Romanticism in Brazil

**Spanish** 230. Neoclassicism and Romanticism

239. Neoclassic and Romantic Prose and Poetry in Spanish America

277. Studies in Colonial Spanish American Literature

**Studies in the 19th Century: French** 219A-219K. The 19th Century

255A-255B. Studies in the 19th Century

**Italian** 219A-219F. Italian Literature of the 19th Century

257A-257B. Seminar on Romanticism

**Portuguese** C242C. 18th- and 19th-Century Literature

C243C. Naturalism, Realism, and Parnassianism

**Spanish** 231. The 19th-Century Novel

270A-270B. Studies in 18th- and 19th-Century Spanish Literature

278. Studies in 19th-Century Spanish American Literature

**Studies in the 20th Century: French** 220A-220P. The 20th Century

221A-221D. French-African Literature

256A-256B. Studies in Contemporary Literature

257A-257B. Studies in French-African Literature

**Italian** 220A-220B-220C. Italian Literature of the 20th Century

258A-258B. Seminar on Contemporary Italian Literature

**Portuguese** C242D. Contemporary Portuguese Literature

C243D. Contemporary Brazilian Literature

**Spanish** 232. The Generation of 1898

233. Contemporary Spanish Drama

234. Contemporary Spanish Poetry

235. Contemporary Spanish Prose

240. The Modernist Movement

243. Contemporary Spanish American Poetry  
 244. Contemporary Spanish American Novel and Short Story  
 245. Contemporary Spanish American Essay  
 272A-272D. Studies in 20th-Century Spanish Literature  
 280A-280D. Studies in Contemporary Spanish American Literature

### Renaissance and Baroque Literature

**Cervantes:** Spanish 227. Cervantes

**Studies in Renaissance and Baroque Literature:** French 216A-216H. The Renaissance

217A-217I. The 17th Century

251A-251B. Studies in the Renaissance

252A-252B. Studies in the Baroque

253A-253B. Studies in the 17th Century

**Italian** 216A-216E. Italian Literature of the 16th Century

217A-217B-217C. Italian Literature of the 17th Century

253A-253B-253C. Seminar on Chivalric Poetry in Italy

255A-255B. Seminar on the Baroque

**Portuguese** C242B. Renaissance and Baroque Literature

C243A. Colonial Literature

**Spanish** 224. The Poetry of the Golden Age

225. The Drama of the Golden Age

226. Prose of the Golden Age

237. Chroniclers of the Americas

264A-264D. Studies in the Golden Age

## ROTC Programs

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 Officer 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 considered 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 four-year programs for incoming freshmen and two-year programs for students entering their junior year of undergraduate study. All have leadership laboratories which help to build management skills.

## Scholarships

Students in all three departments are eligible to compete for scholarships based on merit and achievement. Scholarships, available for up to four years of study, normally cover the full cost of tuition, books, fees, and educational expenses and provide a living allowance of \$100 per month during the academic year. For further information, contact the specific department in which you are interested.

## Aerospace Studies

208 Men's Gym, 825-1742

### Professor

Franklin D. Roberts, M.A., M.S., Colonel, *Chair*

### Adjunct Assistant Professors

Don Henney, M.B.A., Captain

Marsha L. Westfall, M.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, and operating principles, demonstrating ability to apply modern principles of management and human relations in the Air Force environment, and mastery 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 for beginning freshmen 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."

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

A prerequisite for the two-year program is successful completion of a six-week field training course on an Air Force base during the summer preceding enrollment in the program.

Students interested in this program must apply to the Professor of Aerospace Studies during the Fall Quarter preceding the six-week summer field training course. Students attending the six-week summer field training are provided meals, quarters, and travel expenses and are paid approximately \$675. Students enrolled in POC receive \$100 per month retainer fee for 20 consecutive months.

## Freshman-Year Courses

**1A-1B-1C. U.S. Military Forces in the Contemporary World (1 unit each).** Course 1A is prerequisite to 1B, which is prerequisite to 1C. This sequence of courses examines the role of the Air Force in the contemporary world by studying the total force structure, strategic offensive and defensive forces, general purpose forces, and aerospace support forces.

Capt. Westfall

## Sophomore-Year Courses

**20A-20B-20C. The Developmental Growth of Air Power (1 unit each).** Prerequisites: courses 1A-1B-1C. The courses examine the development of air power over the past 60 years. They trace the development of various concepts of employment of air power and focus on factors which have prompted research and technological change. Key events and elements in the history of air power are stressed, especially where these provide significant examples of the impact of air power on strategic thought.

Col. Roberts

## Upper Division Courses

**130A-130B-130C. Concepts of Air Force Management and Leadership (3 units each).** Course 130A is prerequisite to 130B, which is prerequisite to 130C. An analysis of the principles and functions of management, leadership, and organizational behavior, with special reference to the Air Force as a model. Includes problem solving, information systems and models, quantitative methods, and computer systems. Group discussions, case studies, films, and role-playing are used as teaching devices. Communicative skills are strengthened through preparation of written reports and oral presentations.

**140A. Military Judicial System (3 units).** Seminar. Prerequisite: course 130C. An introduction to the military justice system, international laws of armed conflict relating to air operations, and the foundations of military professionalism. Oral and written reports to strengthen communicative skills are expected.

Capt. Henney

**140B. The Military in American Society (3 units).** Seminar. Prerequisite: course 140A. Examines forces and issues in the social context of the American military. Analyzes the influence of social norms, societal pressures, and cultural factors on the functions and role of the military professional in the United States. Communicative skills are strengthened through extensive classroom presentations.

Capt. Henney

**140C. American Defense Policy (3 units).** Seminar. Prerequisite: course 140B. Examines U.S. security policy with respect to factors that influence its formulation, the bureaucracy that formulates and implements it, and the forms it has taken and may take in the future. Communication techniques are strengthened, and communication abilities are oriented to Air Force requirements through preparation of papers and classroom presentation and discussion.

Capt. Henney

## Military Science

142 Men's Gym, 825-7381

### Assistant Professors

Harriett L. Brinn, M.A., Captain  
Bill R. Moore, M.A., Major  
Gregory Olson, M.B.A., Major  
J.L. Steuber, M.B.A., Captain

## Army ROTC Scope and Objectives

Army ROTC prepares selected students for leadership as commissioned officers in the United States Army, Army Reserve, or National Guard. This training includes understanding military history, doctrine, and operating procedures and developing leadership and management potential.

## 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 nine units of coursework and (2) the Advanced Course, two years of upper division study consisting of 13 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 \$100 a month for ten months during each of the two academic years, plus military science books and uniforms. After completion of the Advanced Course, students are commissioned as second lieutenants in one of the Army's specialty areas. Insofar as possible, students' desires and academic major will be considered.

Students selected for Advanced ROTC must attend a six-week Advanced Camp between their Military Science III and IV years. Cadets will 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 only three months. Students accepting ROTC scholarships, a commission in the Regular Army, or who are selected to enter the Active Army will 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 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, enlist in the United States Army Reserve, and accept a commission if offered.

## Two-Year Program

This program is designed for students who receive placement credit for two years of senior 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 summer camp, joining the Army Reserve or National Guard (veterans may receive VA benefits concurrently with Advanced Course subsistence allowances), completing two years of college-level Air Force or Navy ROTC, completing an ROTC compression course, or previous military service.

## Commissioning

Successful completion of the Advanced Course leads 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

**000. Leadership Laboratory (No credit).** Laboratory, two hours. Cadets must be concurrently enrolled in a military science course and actively pursuing a commission through the ROTC program. Required of all Army ROTC students each quarter. Designed to allow cadets to apply the leadership techniques and military skills taught in the classroom and to develop the confidence needed to cope with the challenges associated with being an officer.

**11. U.S. Defense Establishment (2 units).** A study of the evolution of the U.S. Department of Defense, including a study of the military services, with emphasis on the U.S. Army.

**11A. Comparative U.S. and Soviet Defense Systems (1 unit).** Comparison of the U.S. and U.S.S.R. defense organizations, with emphasis on current and future trends. Background is provided on civilian organizations controlling the military, budget and manpower resources, armed forces, and nuclear capabilities and trends. Maj. Moore

**12. U.S. Defense Establishment (2 units).** A study of the military institution and other elements of national power as instruments of national policy and strategy in conditions of peace and war.

**13. Theory of Warfare (2 units).** Inquiry into the theory, nature, causes, and elements of warfare, with attention also to the evolution of weapons and warfare.

**13A. Strategic Analysis: Middle East (1 unit).** Analysis of the strategic importance of the Middle East to U.S. and Soviet military and political planners. Discussion focuses on current key issues balanced against the historical perspective. Political, economic, strategic, and military issues are discussed.

Maj. Moore

**14. Leadership and Management Assessment (2 units).** Designed to assess student leadership and management potential in 12 behavioral dimensions and to provide the student with a base from which to further develop specific leadership and management skills.

**17. War and Morality (2 units).** Lecture, one hour; discussion, one hour. The moral/immoral aspects of armed conflict, just and unjust conflict, war and murder. Maj. Olson

**21. United States Military History, 1700-1860 (2 units).** A survey of military history beginning with the heritage of classical warfare and extending to the year 1860. American wars are examined in the context of their interrelationship with and impact on Western society. Economic, political, and diplomatic factors are considered, along with other causes of war, strategy, tactics, and personalities. (F)

**21A. Modern Strategic Thought (1 unit).** The course develops knowledge of defense strategy that may be applied to understanding defense policies and the asserting of national will by the U.S. and U.S.S.R. Background is provided by defining strategy, highlighting important strategists and their concepts, and discussing contemporary strategic thought and six strategic concepts. These concepts then are used as a vehicle for discussion of the effects of the strategy involved in U.S. and Soviet policy decisions. Maj. Moore (W)

**22. United States Military History, 1860-1919 (2 units).** A survey of American military history during the period from 1860 to 1919. The course explores the causes of war, strategy, tactics, and technological developments. Economic, political, diplomatic, and social history is woven into the fabric of war, and a special effort is made to reveal the character and personalities of the leading political and military figures of the period. The impact of war on society is also assessed. (W)

**23. United States Military History, 1919-1975 (2 units).** Survey of American military history which examines American involvement in World War II, Korea, and Vietnam. Causes of war, strategy, tactics, and technology are set against character studies of leading political and military figures from Patton to Westmoreland. The impact of warfare on society is also stressed. (Sp)

**51A. U.S. and Soviet Defense and Foreign Policy (3 units).** Comparison of Soviet and U.S. defense organizations and their relationship to foreign policy goals of the two superpowers. Current capabilities and future trends are examined, along with strategies of both nations and how their defense establishments are employed to secure national objectives.

Maj. Moore

## Upper Division Courses

**111. The Psychology of Leadership I (2 units).** Prerequisites for cadets: completion of Basic Course or equivalent; for noncadets: upper division standing. Introduction to the external environment in which a leader functions and the pressures that exist on a leader. The psychology of the individual as a follower is examined in the areas of motivation, peer pressure/conformity, and group norms to determine how they influence an individual. (F)

**112. The Psychology of Leadership II (3 units).** Prerequisite for cadets: completion of Basic Course or equivalent; for noncadets: upper division standing. Introduction to various individual leadership styles and personalities to assist students in development of their own individual style. Different philosophies of leadership are examined, along with the dimensions of leader behavior. Special consideration to counseling, management, and communication techniques that must be mastered to be an effective leader. (W)



**113. Theory of Learning Applied to Teaching (2 units).** Prerequisite: for cadets: completion of Basic Course or equivalent; for noncadets: consent of instructor. A study of instructional processes, lesson content planning procedures, techniques of applicatory education, role of testing (including evaluation and analysis). Emphasis on improvement of teaching and group process. (Sp)

**115. Russian Military History.** (Formerly numbered 15.) Lecture, three hours. Prerequisite: upper division standing or consent of instructor. The course surveys imperial Russia and Soviet military history in the 19th and 20th centuries. Military developments are considered in the context of economic, geographic, sociological, political, and diplomatic factors or events. The impact of war on Soviet society and government is also explored.

**123. Military Legal Systems (2 units).** An introduction to the theory and application of military law and legal systems. Course focuses on the Uniform Code of Military Justice and the rights of the accused under the constitution. (F)

**125. Decision Making (2 units).** Introduction to the various components of leadership and the functions of management in order to understand where the areas of problem analysis and decision making impact and how they fit into leadership and management. Students then cover the various steps which comprise the problem analysis and decision making processes. (W)

**126. Military Sociology and Ethics (2 units).** Lecture, 90 minutes; discussion, 30 minutes. The course is designed to introduce students to the ethical concepts held by America's military institution. Lectures and class discussion expose students to the classification of the military as a profession, the 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. (Sp)

## Naval Science

123 Men's Gym, 825-9075

### Professor

William G. Carson, MSME, Captain, U.S. Navy,  
Chair

### Assistant Professors

Roy E. Adair, M.S., Commander, U.S. Navy, Vice  
Chair

John M. Misiewicz, M.A., Captain, U.S. Marine  
Corps

### Adjunct Assistant Professors

Robert M. Dailey, M.B.A., Lieutenant Commander,  
U.S. Navy

David R. Ianniello, B.S., Lieutenant, U.S. Navy

## Navy ROTC Scope and Objectives

Navy ROTC at UCLA offers subsidized and nonsubsidized programs for college students who wish to serve their country as commissioned officers in the U.S. Navy or Marine Corps. The primary objectives of NROTC are to provide students with an understanding of the fundamental concepts and principles of naval science; a basic understanding of associated professional knowledge; an appreciation of the requirements for national security; and a strong sense of personal integrity, honor, and individual responsibility.

NROTC enables college graduates to use their education in such military fields as marine engineering, nuclear propulsion engineering, aviation, and Marine Corps infantry and aviation. It also provides an opportunity to develop leadership and management skills in a challenging environment of high responsibility.

The Department of Naval Science offers several programs for which U.S. citizenship is required.

## College Program

This is a four-year program open to physically qualified men and women between the ages of 17 and 21. Students receive \$100 per month in their junior and senior years and complete one summer training cruise after their third year. After graduation, students will be commissioned as Ensign, U.S. Naval Reserve or Second Lieutenant, U.S. Marine Corps Reserve. A three-year active duty obligation is incurred.

## Two-Year Program

Applications are accepted from UCLA students as well as incoming junior college transfers. After a six-week summer training period, students enroll in NROTC as juniors, with the same obligations and privileges as in the College Program described above. The age limit is 27½ years at the time of graduation. Applicants should contact the department no later than March 1 of their sophomore year.

## Two-Year Scholarships

This program is open to academically and physically qualified students in their second year of undergraduate study, who have had some background in college physics and calculus. As with the Two-Year Program described above, candidates will attend a summer Naval Science Institute before their junior year. They will receive full tuition, fees, book expense, and \$100 per month during their last two years. Applications should be made no later than March 1 of the sophomore year.

## NROTC Scholarship Program

This is a nationwide competition open to physically qualified men and women between the ages of 17 and 21. High school juniors and seniors are eligible to apply. Successful applicants receive \$100 per month for four years, plus full payment for tuition, fees, and book expenses. Three summer training cruises are required. Applications must be submitted by December 1 for the following Fall Quarter.

## Freshman-Year Courses

**1A. Introduction to Naval Science (1 unit).** An introduction to the structure of the Department of the Navy and its legal framework. Relationships in the Department of Defense. Components of the Naval Service. Shipboard organization. Lt. Ianniello

**1B. Naval Ship Systems I.** An introduction to the principles of ship hull and superstructure design. The concepts of ship structural integrity, stability, and buoyancy are examined in detail. Basic thermodynamic principles inherent in ship propulsion and salt water distillation systems are analyzed.

Lt. Ianniello

## Sophomore-Year Courses

**20A. Seapower and Maritime Affairs (2 units).** A conceptual study of seapower, emphasizing the historical development of naval and commercial power. Seapower is examined in relation to economic, political, and cultural strengths, focusing on current abilities of specific nations to use the oceans to attain national objectives. Capt. Carson

**20B. Naval Ship Systems II.** A study of naval weapon systems, with emphasis on target designation and acquisition, methods of solving fire control problem and target detection systems. Analysis of transfer and feedback functions inherent in weapon systems. Infrared, radar, and sonar principles. Lt. Ianniello

## Junior-Year Courses

**101A. Navigation I.** A study of principles of piloting, rules of the road, shiphandling, and basic concepts of multiple ship formations in ocean transit. Includes in-depth discussion of problems associated with high seas and inland water, applying to small craft and supertankers alike. LCdr. Dailey

**101B. Navigation II.** Prerequisite: course 101A or consent of instructor. A detailed study of electronic and celestial navigation employed in the determination of a ship's position at sea, including spherical trigonometry, mathematical analysis, sextant sights, and the use of navigational aids. LCdr. Dailey

**\*103. Evolution of Warfare.** A study of the evolution of warfare, including historical and comparative consideration of the influence that leadership, political, economic, and sociological and technological development factors have had on warfare and the influence they continue to exert in the age of limited warfare. Capt. Misiewicz

\*Course to be taken by candidates for commissions in the Marine Corps or Marine Corps Reserve in lieu of courses 101A, 101B, 102B, 102C.

## Senior-Year Courses

**102B. Naval Leadership and Management I.** An examination of current and classical leadership and management theories and their application to the military environment. Interpersonal communication, counseling theory, moral and professional ethics, conflict resolution, and management of change. The leadership problems created by racism, sexism, alcoholism, and drug abuse are also discussed. Capt. Misiewicz

**102C. Naval Leadership and Management II (2 units).** Prerequisite: course 102B. Examines current leadership and management in the U.S. Navy. Areas include human resources management, personnel management, material management, and performance and career evaluation. Cdr. Adair

**\*104. Amphibious Operations.** A study of the art of amphibious operations, including the historical development of techniques used to project military power from sea to land. The evolution of amphibious doctrine and techniques is examined through study of the U.S. landings during World War II, the Korean Conflict, and the Vietnam War. Capt. Misiewicz

\*Course to be taken by candidates for commissions in the Marine Corps or Marine Corps Reserve in lieu of courses 101A, 101B, 102B, 102C.

# Slavic Languages and Literatures

115 Kinsey Hall, 825-2676

## Professors

Aleksandar Albijanić, Ph.D. (*South Slavic Languages and Literatures*)  
Henrik Birnbaum, Ph.D. (*Slavic Languages and Literatures*)  
Thomas Eekman, Ph.D. (*Slavic Literatures*)  
Michael S. Flier, Ph.D. (*Slavic Languages and Literatures*)  
Marija Gimbutas, Ph.D. (*European Archaeology*)  
Kenneth E. Harper, Ph.D. (*Russian Literature*)  
Vladimir Markov, Ph.D. (*Russian Literature*)  
Alan H. Timberlake, Ph.D. (*Slavic Languages*), *Chair*  
Dean S. Worth, Ph.D. (*Slavic Languages*)

## Associate Professors

Michael Heim, Ph.D. (*Czech and Russian Literature*)  
Peter Hodgson, Ph.D. (*Russian Literature*)  
Rochelle Stone, Ph.D. (*Polish and Russian Literature*)

## Lecturer

Edward Denzler, M.A. (*Russian*)

## Scope and Objectives

The undergraduate program, leading to a Bachelor of Arts degree in Slavic Languages and Literatures, is designed to provide students with a basic mastery of the Russian language, a familiarity with the classics of Russian literature, and a general background in the cultural, political, and social history of the Slavic peoples.

The program presents a considerable range of options to students with specialized interests. Besides the traditional major in Slavic languages and literatures, the program also offers B.A. degrees in Russian Civilization (language, literature, history, economics, political science, geography, art, music, film) and Russian Linguistics (language, literature, Russian and Slavic linguistics, general linguistics, psychology).

The graduate program provides advanced training in Slavic linguistics and literature leading to the master's degree and the Ph.D. 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 secondary language teaching, translation, interpreting, librarianship, and government service.

## Undergraduate Study

The department offers three majors: (1) Slavic languages and literatures, (2) Russian civilization, and (3) Russian linguistics. The major in Slavic languages and literatures is normally required for admission to the department's

graduate program and will be used to determine the number of courses in Russian literature and/or linguistics that students majoring in Russian civilization or Russian linguistics will be expected to make up in order to receive graduate degrees in the department. Students who do not choose the major in Slavic languages and literatures but 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 several graduate courses numbered below 220 by consent of the instructor and the graduate adviser.

Work completed in the University's summer or semester Russian programs at Leningrad State University may be applied toward fulfillment of the Russian 101- and 111-series requirements in any of the following majors.

## Bachelor of Arts in Slavic Languages and Literatures

### Preparation for the Major

*Required:* Slavic 99, Russian 1, 2, 3, 4, 5, 6, 99.

### The Major

*Required:* Russian 101A-101B-101C, 111A-111B-111C, 118, 119, 120, 121, 122, 123; three courses from 130A, 130B, 130C, 134, 140A, 140B, 140C, 140D, M150; one course from 124A through 124F; any two electives from Russian 102A, 102B, 102C (when taken in conjunction with Russian 112A, 112B, 112C), 124A through 124F, 125, 126, 130A, 130B, 130C, 134, 140A, 140B, 140C, 140D, M150, 193, Czech 155A, 155B, Polish 152A, 152B, Serbo-Croatian 154A, 154B. Note: Russian 118, 119, and 120 may be taken in the sophomore year.

## Bachelor of Arts in Russian Civilization

### Preparation for the Major

*Required:* Russian 1, 2, 3, 4, 5, 6, 99.

### The Major

*Required:* Russian 101A-101B-101C, 111A-111B-111C, 119, 120, three additional courses in Russian literature, seven courses from Russian M170, Economics 182, Geography 184, History 131A, 131B, 131C, 131D, Political Science 128A, 128B, 156, or special courses in the Departments of Art, Music, Theater Arts, and Slavic Languages and Literatures approved by the undergraduate adviser.

## Bachelor of Arts in Russian Linguistics

### Preparation for the Major

*Required:* Russian 1, 2, 3, 4, 5, 6.

## The Major

*Required:* Russian 101A-101B-101C, 111A-111B-111C, 121, 122, 123, Linguistics 100, 103, 110, 120A, 120B, five courses from Russian 102A, 102B, 102C (when taken in conjunction with Russian 112A, 112B, 112C), 130A, 130B, 130C, 134, 140A, 140B, 140C, 140D, M150, Slavic 201, 202, Linguistics 125, 127, M150, 160, 164, C165A, C165B, Psychology 123. Students majoring in Russian linguistics who intend to pursue graduate study in the department are strongly encouraged to take at least three of the Russian literature courses enumerated above.

## Graduate Study

The Department of Slavic Languages and Literatures at UCLA offers M.A. and Ph.D. degrees in Slavic Languages and Literatures.

## Admission

In addition to the University minimum requirements, the department requires the equivalent of a UCLA B.A. in Slavic Languages and Literatures, or three years of Russian language and a sufficient number of Russian history, literature, and linguistics courses so that you will not need more than one year (nine courses) to make up deficiencies. For application to the Ph.D. program, the department requires a UCLA M.A. in Slavic Languages and Literatures or its equivalent. If you do not hold a UCLA M.A. in Slavic Languages and Literatures, you are required to take the M.A. comprehensive examination as a screening examination within your first year and to make up any deficiencies in your background compared with that of a UCLA master's degree recipient.

For all applicants, three letters of recommendation are required from persons capable of judging your academic potential. No departmental admission tests are necessary, but the Graduate Record Examination is required.

A department brochure describing the curriculum in some detail (graduate and undergraduate) is available from the Graduate Adviser, Slavic Languages and Literatures, UCLA, Los Angeles, CA 90024.

## Major Fields or Subdisciplines

Candidates for the M.A. and Ph.D. degrees choose a specialization in either literature or linguistics, with Russian as the principal language and literature. On the Ph.D. level, students may specialize in a language or literature other than Russian by special arrangement.

## Master of Arts Degree

### Foreign Language Requirement

There are two foreign language requirements which must be completed at least one quarter before the M.A. comprehensive examination:

(1) you must pass a departmental Russian language proficiency examination which tests the ability to translate from Russian to English and vice versa. This examination may be retaken each quarter until a pass grade is achieved; (2) you must demonstrate an ability to read scholarly literature in either French or German by one of three options: (a) passing the appropriate Educational Testing Service (ETS) reading examination with a score of 500 or better, (b) passing the departmental reading examination, or (c) completing level five at UCLA in one of the languages with a grade of B or better (equivalent university-level coursework in French or German taken within two years before admittance may satisfy this requirement at the discretion of the graduate adviser).

### Course Requirements

Slavic 201, Russian 102A-102B-102C, 112A-112B-112C, and 204 are required of all M.A. students.

Literature students must also take Russian 211, 212, 213, and one other literature course in the department.

Linguistics students must also take Slavic 202, Russian 221, 222, 225, and two courses from 211, 212, 213.

Courses in the 500 series may not be applied toward the M.A. course requirements.

### Comprehensive Examination Plan

Application 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 will be accepted only if you have satisfied the foreign language requirement in French or German and have passed the Russian Language Proficiency Examination. Examinations are offered at the end of each quarter. After you have declared your intention to take the examination in a given quarter, a committee consisting of three members is appointed by the Chair and the graduate adviser. The comprehensive examination has two parts — written (three hours) and oral (two hours) — and is based on coursework and the departmental reading list. The examination covers either linguistics or literature. If you receive a pass grade on the written examination, you will be admitted to a two-hour oral examination, which is designed to test the fields of major interest and general background. It will be conducted partly in Russian.

Your 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, no later than one calendar year after the first attempt.

## Ph.D. Degree

### Admission

You are formally admitted to the Ph.D. program after (1) passing the UCLA M.A. comprehensive examination with a grade of high pass; (2) passing the reading examination in both French and German (see "Foreign Language Requirement"); (3) taking one year (or the equivalent) of a second Slavic language.

If you are entering UCLA with an M.A. from another institution, the comprehensive examination serves as a screening examination for admission to the doctoral program. You may retake the examination once in order to achieve the necessary high pass grade.

### Foreign Language Requirement

You must demonstrate an ability to read scholarly literature in both French and German by completing one of the three options listed under the master's degree. With departmental consent, students specializing in linguistics may substitute a reading knowledge in another language important to the study of Slavic linguistics (Finnish, Hungarian, Lithuanian, Latvian, Romanian, or a Turkic language relevant to East or South Slavic historical linguistics) and a score of 450 on the ETS examination in either French or German. Reading knowledge of two such languages may, by the same procedure, be substituted for the entire French or (more rarely) German examination.

### Course Requirements

Before the formation of a doctoral committee, you must have been officially admitted to the doctoral program and have taken the following required courses.

Linguistics students must take Slavic 221, 222, 223, and four other advanced linguistics courses or seminars (numbered above 220).

Recommended preparation for linguists includes Linguistics 100, 103, 110, 120A, 120B, M150.

Literature students must take two courses from Slavic 230A-230B-230C; Russian 251A; and three additional seminars.

Candidates specializing in literature are advised to acquire a sound general knowledge of modern Western European literature.

### Qualifying Examinations

Candidates in linguistics are required to submit to the examination committee a serious research paper of publishable quality. The paper must be received and approved no later than one quarter preceding the comprehensive written examination.

All students are expected to have a sound general knowledge of both Slavic philology and Russian literary history equivalent to that required for the M.A. at UCLA. For linguistics

students, there is one written three-hour qualifying examination given at the end of each quarter. For literature students, there are two written three-hour qualifying examinations given one week apart at the end of each quarter.

If you receive a grade of pass on the written examination(s), you 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 your overall performance in both the oral and written examinations, the committee assigns a cumulative grade. A pass grade entitles you to write a dissertation in order to receive the Ph.D. degree. At the committee's discretion, you 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, you must prepare a prospectus of the dissertation.

You are required to deliver a formal lecture in the Slavic colloquium no later than two calendar years after advancement to candidacy.

### Final Oral Examination

A final oral examination is required except in case of geographically imposed hardship.

### Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Slavic

### Lower Division Course

**99. Introduction to Slavic Civilization.** Lecture, three hours. An introductory survey of the social and cultural institutions of the Slavic peoples and their historical background.

### Upper Division Courses

**177. Baltic Languages and Cultures (2 units).** A general survey of the peoples speaking Old Prussian, Lithuanian, and Latvian; their linguistic, historical, and ethnic affiliations. Mrs. Gimbutas

**M179. Baltic and Slavic Folklore and Mythology.** (Same as Folklore M126.) Lecture, three hours. A general course for students interested in folklore and mythology and for those interested in Indo-European mythic antiquities. Mrs. Gimbutas

**199. Special Studies (2 to 8 units).** Prerequisites: senior standing and consent of instructor.

## Graduate Courses

### Linguistics

**201. Introduction to Old Church Slavic.** Lecture, three hours. Required for the M.A. (linguistics, literature). Introduction to phonology and grammar; readings.

**202. Introduction to Comparative Slavic Linguistics.** Lecture, three hours. Required for the M.A. (linguistics). Introduction to the comparative phonology and grammar of the Slavic languages.

**221. Introduction to East Slavic Languages.** Lecture, three hours. Prerequisite: course 202. Recommended: Russian 102A-102B-102C or Ukrainian 101A-101B-101C. Required for the Ph.D. (linguistics). Introduction to the structure and history of the 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 the Ph.D. (linguistics). Introduction to the structure and history of the 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 the Ph.D. (linguistics). Introduction to the structure and history of the South Slavic languages.

**224. Introduction to Ukrainian and Belorussian.** Lecture, three hours. Prerequisite: course 202. Introduction to the history and structure of Ukrainian and Belorussian.

**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 the development of Common Slavic.

**251. Introduction to Baltic Linguistics.** Lecture, three hours. Prerequisite: course 202. Introduction to Baltic linguistics, with special attention to the 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.** Lekhitic; **262B.** Czechoslovak, Sorbian.

**263A-263B. South Slavic Linguistics.** Lecture, three hours. Prerequisite: course 223. **263A.** Serbo-Croatian, Slovene; **263B.** Bulgarian, Macedonian.

**281. Seminar in Slavic Linguistics.** Seminar, three hours. Selected topics in comparative and historical Slavic linguistics. May be repeated for credit by consent of instructor and graduate adviser.

**282. Seminar in Structural Analysis.** Seminar, three hours. Selected topics. May be repeated for credit by consent of instructor and graduate adviser.

## Literature

**230A-230B-230C. Comparative Slavic Literature.** Lecture, three hours. Recommended prerequisites: upper division courses in Czech, Polish, Russian, and Yugoslav literatures. Two quarters are required for the Ph.D. (literature). **230A.** Middle Ages through Baroque; **230B.** Classicism to Romanticism; **230C.** Realism to Modernism.

**290. Seminar in 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 by consent of instructor and graduate adviser.

**295. Seminar in Literary Analysis.** Seminar, three hours. Recommended 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 by 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. A teaching apprenticeship under the 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 Examination (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. An introductory survey of the social and cultural institutions of the Bulgarian people and their historical background.

### Upper Division Courses

**103A-103B-103C. Elementary Bulgarian.** Recitation, five hours. Basic course in the Bulgarian language.

**154. Survey of Bulgarian Literature.** Lecture, three hours. Prerequisite: upper division standing. Lectures and readings in English. A survey of Bulgarian literature from the Middle Ages to the present.

## Czech

### Upper Division Courses

**102A-102B-102C. Elementary Czech.** Recitation, five hours. Basic course in the Czech language.

**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.** Recitation, five hours. Basic course in the Polish language.

**102D-102E-102F. Advanced Polish.** Recitation, three hours. Prerequisite: course 102C.

**152A-152B. Survey of Polish Literature.** Lecture, three hours. Lectures and readings in English. **152A.** From the Middle Ages to Romanticism; **152B.** From Realism to the Present.

**160. Polish Romanticism.** Lecture, three hours. Lectures and readings in English. Comparison of Polish Romanticism with that of other Slavic and Western European countries.

### Graduate Course

**280. Seminar in Polish Literature.** Seminar, three hours. Selected topics in Polish prose, poetry, and drama. May be repeated for credit by consent of instructor and graduate adviser.

## Russian

### Language Courses

**1. Elementary Russian.** Recitation, five hours; laboratory, one hour.

**2. Elementary Russian.** Recitation, five hours; laboratory, one hour.

**3. Elementary Russian.** Recitation, five hours; laboratory, one hour.

**4. Intermediate Russian.** Recitation, five hours; laboratory, one hour.

**5. Intermediate Russian.** Recitation, five hours; laboratory, one hour.

**6. Intermediate Russian.** Recitation, five hours; laboratory, one hour.

**10A-10B-10C. Russian Conversation (2 units each).** Prerequisite: course 3 or consent of instructor. Russian conversation designed to supplement the grammar and readings of courses 4, 5, 6.

**11A-11B-12A-12B-13A-13B. Self-Paced Program in Russian (2 to 12 units).** Basic course in the Russian language. Each two-unit course in the 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 the completion or simultaneous enrollment in all courses lower in the sequence.

**101A-101B-101C. Advanced Russian (3 units each).** Prerequisite: course 6. Advanced grammar and reading.

**102A-102B-102C. Advanced Grammar and Reading (3 units each).** Prerequisite: course 101C or consent of instructor. Required for the M.A. (linguistics, literature). Advanced grammatical analysis; reading of difficult texts.

**111A-111B-111C. Conversation and Composition (1 unit each).** Recitation, two hours. Prerequisites: courses 6 and 10C, or consent of instructor. Required of majors. Conversation and composition. Conducted in Russian.

**112A-112B-112C. Advanced Conversation and Composition (1 unit each).** Recitation, two hours. Prerequisite: course 111C or consent of instructor. Required for the M.A. (linguistics, literature). Advanced conversation and composition. Conducted in Russian.

## Linguistics Courses

**121. Russian Phonology.** Lecture, three hours. Prerequisite: course 6. Introduction to transliteration and transcription, articulatory phonetics, phonemics.

**122. Russian Morphology.** Lecture, three hours. Prerequisite: course 121. Introduction to morphophonemics, inflection, derivation.

**123. Historical Commentary on Modern Russian.** Lecture, three hours. Prerequisites: courses 121, 122. Historical explanation of the phonological and morphological anomalies of modern Russian.

## Literature and Civilization Courses

**99. Introduction to Russian Civilization.** Lecture, three hours. An introductory survey of the social and cultural institutions of the Russian people and their historical background.

**100. The Russian Novel in Translation.** Lecture, three hours. Designed for nonmajors. A study of major works by the great 19th-century Russian novelists.

**118. Survey of Russian Literature to Pushkin.** (Formerly numbered 119.) 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.** (Formerly numbered 120A.) 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.** (Formerly numbered 120B.) 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. The following writers are alternately discussed: **124A.** Pushkin; **124B.** Gogol; **124C.** Turgenev; **124D.** Dostoevsky; **124E.** Tolstoy; **124F.** Chekhov.

**125. The Russian Novel in its European Setting.** Lecture, three hours. Prerequisite: upper division standing. Emphasis on 19th- and 20th-century novelists. Lectures and readings in English.

**126. Survey of Russian Drama.** Lecture, three hours. Prerequisite: upper division standing. Major Russian plays from the 18th to 20th century. Lectures and readings in English.

**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. Major poetical works. Lectures and readings in Russian.

**140A-140D. Russian Prose.** Lecture, three hours. Prerequisite: course 6. Lectures and readings in Russian. **140A.** Major Writers from Karamzin to Turgenev; **140B.** Dostoevsky to Gorky; **140C.** Contemporary Writers; **140D.** Advanced Readings in Russian Prose.

**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. A general introduction to Russian folklore, including a survey of genres and related folkloric phenomena. Lectures and readings in English.

**193. Seminar in Russian Literature.** Lecture, three hours. Prerequisite: course 6 or consent of instructor. Recommended: course 101C. Reading and discussion of selected authors; written seminar papers are usually required.

## Graduate Courses

### Linguistics

**203. Higher Course in Russian (2 units).** Prerequisite: course 102C. Two quarters per year are required of Ph.D. students. Reading of advanced texts; advanced composition, conversation; stylistics. May be repeated for credit. S/U grading.

**204. Introduction to the History of the Russian Literary Language.** Lecture, three hours. Prerequisites: course 123, Slavic 99. Required for the M.A. (linguistics, literature). Survey of literary Russian in its cultural and historical setting.

**210. Readings in Russian Historical Texts.** Lecture, three hours. Prerequisite: Slavic 201 or consent of instructor. Readings in early Russian chronicles and other documents of historical interest.

**221. Advanced Russian Phonology (2 units).** Prerequisites: courses 102A-102B-102C, 121 (may be taken concurrently). Required for the M.A. (linguistics). Advanced study and analysis of problems in Russian phonology.

**222. Advanced Russian Morphology (2 units).** Prerequisites: courses 102A-102B-102C, 122 (may be taken concurrently). Required for the M.A. (linguistics). Advanced study and analysis of problems in Russian inflection and derivation.

**225. Russian Syntax.** Lecture, three hours. Prerequisites or corequisites: courses 102A-102B-102C. Required for the M.A. (linguistics). Survey of Russian syntax and grammatical categories.

**241. Topics in Russian Phonology.** Lecture, three hours. Prerequisite: course 221. Selected topics in Russian phonology.

**242. Topics in Russian Morphology.** Lecture, three hours. Prerequisite: course 222. Selected topics in Russian inflection and derivation.

**243. Topics in Historical Russian Grammar.** Lecture, three hours. Prerequisites: course 123, Slavic 221. Selected topics in Russian historical phonology, morphology, and syntax.

**263. Russian Dialectology.** Lecture, three hours. Prerequisite: Slavic 221. Phonology and grammar of modern Great Russian dialects.

**264. The History of the Russian Literary Language.** Lecture, three hours. Prerequisites: course 204, Slavic 201. The evolution of literary Russian from the 11th to 20th century. Lectures and analysis of texts.

**265. Advanced Russian Syntax.** Lecture, three hours. Prerequisite: course 225. Traditional and generative approaches to Russian syntax.

**266. Russian Lexicology.** Lecture, three hours. Examination of the formal and semantic structure of the Russian lexicon.

### Literature

**211. 18th-Century Russian Literature.** Lecture, three hours. Required for the M.A. (literature). Lectures and readings in major and secondary writers. Analysis of selected literary works.

**212. 19th-Century Russian Literature.** Lecture, three hours. Required for the M.A. (literature). Lectures and readings in major and secondary writers.

**213. 20th-Century Russian Literature.** Lecture, three hours. Required for the M.A. (literature). Lectures and readings in major and secondary writers.

**251A-251B. Old Russian Literature.** Lecture, three hours. **251A.** Required for the Ph.D. (literature). Survey of Old Russian literature from the beginnings through the Kievan and the Muscovite periods up to the end of the 17th century. **251B.** Detailed discussion of specific writers, periods, or genres.

**270. Russian Poetics.** Lecture, three hours. Prerequisites: courses 130A-130B-130C. Introduction to the technical study of Russian poetics and versification, with attention to metrics, stanza forms, rhyme, and the development of various verse types from the 18th into the 20th century.

**290. Seminar in Russian Poetry.** Seminar, three hours. Prerequisites: courses 130A-130B-130C. Recommended: course 270. Detailed study of a single author, period, or work. May be repeated for credit by consent of instructor and graduate adviser.

**291A. Seminar in Old Russian Literature.** Seminar, three hours. Prerequisite: course 251A. Selected topics from the 11th through the 17th century. May be repeated for credit by consent of instructor and graduate adviser.

**291B. Seminar in 18th-Century Russian Literature.** Seminar, three hours. Prerequisite: course 211. Selected authors and works from 18th-century poetry, prose, and drama. May be repeated for credit by consent of instructor and graduate adviser.

**292. Seminar in 19th-Century Russian Literature.** Seminar, three hours. Prerequisite: course 212. Selected authors and works from 19th-century poetry, prose, and drama. May be repeated for credit by consent of instructor and graduate adviser.

**293. Seminar in 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 by consent of instructor and graduate adviser.

**294. Seminar in Russian Literary Criticism.** Seminar, three hours. Prerequisites: courses 211, 212, 213. Detailed study of a specific school of literary criticism, a single literary critic, or a period in Russian literary history as reflected in literary criticism. Simultaneous or similar phenomena in literary criticism in the West are included. May be repeated for credit by consent of instructor and graduate adviser.

## Serbo-Croatian

### Upper Division Courses

**103A-103B-103C. Elementary Serbo-Croatian.** Recitation, five hours. Basic course in the Serbo-Croatian language.

**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. The Structure of Slovak.** Lecture, three hours. Prerequisite: Slavic 202. Recommended: Slavic 222. Introduction to the phonological and morphological structure of the Slovak language, especially as contrasted with Czech.

## Ukrainian

### Upper Division Courses

**101A-101B-101C. Elementary Ukrainian.** Recitation, five hours. Basic course in the Ukrainian language.

**152. Ukrainian Literature.** Lecture, three hours. A survey of writers, literary trends, and issues in Ukrainian literature from the late 18th century to the present. Special attention to the works of such major figures as I. Kotlyarevsky, T. Shevchenko, I. Franko, L. Ukrainka, and P. Tyshyn. Lectures and readings in English.

## Non-Slavic Languages of Eastern Europe

### Lithuanian

### Upper Division Courses

**101A-101B-101C. Elementary Lithuanian.** Recitation, five hours. Basic course in the Lithuanian language.

## Romanian

### Lower Division Course

**99. Introduction to Romanian Civilization.** Lecture, three hours. An introductory survey of the social and cultural institutions of the Romanian people and their historical background.

## Upper Division Courses

**101A-101B-101C. Elementary Romanian.** Recitation, five hours. Basic course in the Romanian language.

**152. Survey of Romanian Literature.** Lecture, three hours. Lectures and readings in English. A survey of Romanian literature from the Middle Ages to the present.

## Graduate Course

**201. Romanian as a Romance Language.** Lecture, three hours. A survey of the structure and development of the Romanian language, with special emphasis on the relationship of Romanian to other members of the Romance group.

## Related Courses in Other Departments

**Dance** 74B, 184B; **Economics** 182; **Geography** 184; **Linguistics** 100, 103, 110, 120A, 120B, M150, as well as several of the graduate courses in linguistics; **Music** 81C, 142A-142B; **Political Science** 128A-128B, 156, 157.

# Sociology

264 Haines Hall, 825-1313

## Professors

Jeffrey Alexander, Ph.D.  
Rodolfo Alvarez, Ph.D.  
Judith Blake, Ph.D.  
Phillip Bonacich, Ph.D., *Chair*  
Lucie Cheng, Ph.D.  
Burton R. Clark, Ph.D.  
Robert M. Emerson, Ph.D.  
Howard E. Freeman, Ph.D.  
Harold Garfinkel, Ph.D.  
C. Wayne Gordon, Ph.D.  
Oscar Grusky, Ph.D.  
Harry H. L. Kitano, Ph.D.  
Gene N. Levine, Ph.D.  
Ivan H. Light, Ph.D.  
Valerie K. Oppenheimer, Ph.D.  
Georges Sabagh, Ph.D.  
Emanuel A. Schegloff, Ph.D.  
Melvin Seeman, Ph.D.  
Edwin S. Shneidman, Ph.D.  
Gerald H. Shure, Ph.D.  
Warren D. TenHouten, Ph.D.  
Donald J. Treiman, Ph.D.  
Ralph H. Turner, Ph.D.  
Maurice Zeitlin, Ph.D.  
Ralph L. Beals, Ph.D., *Emeritus*  
Leo J. Kuper, Ph.D., *Emeritus*

## Associate Professors

Kenneth D. Bailey, Ph.D.  
Michael S. Goldstein, Ph.D.  
John E. Horton, Ph.D.  
Jack Katz, Ph.D.  
David E. Lopez, Ph.D.  
David D. McFarland, Ph.D.  
David O'Shea, Ph.D.  
Melvin Pollner, Ph.D.  
Jerome Rabow, Ph.D.  
William G. Roy, Ph.D.  
Samuel J. Surace, Ph.D.  
Julia C. Wrigley, Ph.D.  
Lynne G. Zucker, Ph.D.

## Assistant Professors

Clarence Lo, Ph.D.  
Melvin Oliver, Ph.D.  
Jeffrey Prager, Ph.D.

## Adjunct Assistant Professors

Harris Allen, Ph.D.  
Renee Anspach, Ph.D.  
David Davis, Ph.D.  
Keiko Nakao, Ph.D.  
David Unruh, Ph.D.  
Stephen Webster, 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 ten best in the nation in a 1982 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:* Sociology 1 or 101, 18 (or Mathematics 50, Psychology 41, Economics 40, or Public Health 100A), one course from Group A (Mathematics 2, 3A), one course from Group B (Philosophy 8, 9, 31), one course from Group C (Anthropology 5, 6, 22, Economics, 1, 2, Geography 3, History 1A, 1B, 1C, Political Science 1, Psychology 10).

*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, not including Sociology 101. These ten courses (40 units) must include the following:

- (1) Sociology 109 and 112 or 113. These courses, devoted to the systematic exploration of sociological methods and theories, should be completed as early as possible in your junior year.
- (2) Four upper division courses as required by one of the specialized "Concentrations for the Major" listed below.
- (3) Any four additional upper division sociology courses.
- (4) Four upper division allied field courses (16 units) in other departments to complete the major. The allied fields are anthropology, economics, geography, history, political science, and psychology.
- (5) English 100W.

## Concentrations for the Major

By the end of the junior year and no later than the beginning of the senior year, you are required to declare your specific concentration by filing a statement with the undergraduate counselor. The purpose of the concentration requirement is to expose you to systematic, in-depth work within a specific area of sociology. Completion of a concentration requires four upper division sociology courses. You must take a concentration's required course (if any) before declaring that concentration. You must select one of the following concentrations and meet its course requirements:

### (1) Comparative and Historical Sociology

*Required:* 138  
Two of the following: 120, 125, 126, 140, 141  
One of the following: 130, 131, 132, 133, 134, 136, 137

### (2) Organizations

*Required:* 121  
Three of the following: 120, 123, 128, 140, 141, 147, 152

### (3) Political Sociology

*Required:* 140  
Three of the following: 114, 120, 124, 136, M143, 147, 150

### (4) Quantitative Sociology

Consult the faculty adviser for premajor requirements for this concentration.  
*Required:* 116  
Three of the following: 123, 126, 152, 154  
*Recommended:* Mathematics 152A-152B instead of Sociology 18 on the preparation



**(5) *Race and Ethnicity***

Required: 124

Two of the following: 120, 123, 125, 151, 155

One of the following: 130, 131, 132, 133, 134, 136, 137

**(6) *Social Change and Modern Society***

Required: 120

Two of the following: 123, 140, 150

One of the following: 124, 125, 136, 141

**(7) *Social Demography***

Required: 126

Three of the following: 116, 123, 127, 132, 160

**(8) *Social Organization and Language, Thought, and Experience***

Four of the following: 117, C144A, C144B, 146, 148, 149, 153, 157, 159

**(9) *Social Psychology***

Required: 154

Three of the following: 115, 150, 151, 152, 153, 155, 156

**(10) *Social Stratification***

Required: 123

Three of the following: 114, 116, 124, 128, 136, 140, 155, 160

**(11) *Social Policies and Social Programs***

Required: 110 and 129

One of the following: 120, 121, 124, 136

One of the following: M143, 146, 147, 157, 161, 162

A psychology course taken to fulfill the breadth requirement cannot also be used for the allied field requirement. 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 109, 210A, and 210B are recommended for students who intend to pursue graduate work in sociology.

**Honors Program**

The honors program in sociology provides an opportunity for outstanding students to undertake an independent year-long research project under the guidance of a faculty member. The project culminates with an honors thesis or paper. Students intending to obtain advanced degrees will find this program especially useful. If you are selected, you will enroll in Sociology 199HA-199HB-199HC in your senior year. These courses may be applied toward the ten upper division courses required of all sociology majors. After completing the program, you will graduate either with departmental honors or highest honors.

**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 in the Undergraduate Counselor's Office, 254B Haines Hall. You should apply in the last quarter of your junior year.

**M.A. and Ph.D. Degrees**

The graduate program of the department 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 will ordinarily accept only students who are seeking the Ph.D. degree. A master's degree may be earned as part of the process of completing the requirements for the Ph.D.

**Admission**

In addition to the minimum University requirements, the department requires (1) three letters of recommendation, preferably from professors of sociology who are familiar with your written work and research experiences; (2) transcripts from all colleges where you have studied; (3) a statement of purpose, 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 you have written; (5) an official statement of scores on the Graduate Record Examination; and (6) for applicants whose native tongue 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.

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 January 15. Application forms and more detailed information are available from the Graduate Affairs Assistant, Department of Sociology, UCLA, Los Angeles, CA 90024.

**Major Fields or Subdisciplines**

In the first two years you will usually satisfy the course requirements for the M.A. degree and write a master's paper that is evaluated by the department in your sixth quarter of residence. During the first year of graduate study, and no later than the first quarter of the second year, you are expected to form a two-person master's committee to help you prepare the master's paper.

In the quarter following acceptance of your master's paper, usually at the beginning of the third year, you 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. The area programs represent the special strengths of the department in research and graduate instruction:

**(1) Ethnomethodological, Phenomenological, and Observational Sociologies:** 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.

**(2) Macrosociology:** Political sociology, economy and society, historical and comparative sociology, macrosociological theory, and comparative stratification.

**(3) Methods and Models:** Survey research methods, methods of applied and evaluation research, formal demography, advanced social statistics, and mathematical sociology.

**(4) Social Organization and Institutions:** Social demography, stratification, and mobility, work and occupations; social change and class analysis; complex/formal organizations; crime, deviance, and social control; sociologies of education and cognitive development; sociologies of knowledge, science, and technology; mass media and mass communication; medical sociology; biosociology; social and ethnic communities; intergroup relations; urban studies.

**(5) Social Psychology:** Attitudes and social structure, collective behavior, socialization, social interaction and small group behavior, and organizational social psychology.

**Foreign Language Requirement**

**Master's Degree:** There is no foreign language requirement for the master's degree.

**Ph.D. Degree:** The foreign language requirement for the Ph.D. is one language or a substitute program approved by the executive committee. Students who plan to study toward the Ph.D. degree should complete the foreign language requirement as early as possible, so as to make use of foreign language sociological publications throughout graduate study. In any case, the foreign language requirement must be fulfilled before the doctoral committee is nominated and the oral examination is taken. Reading knowledge of one language, as demonstrated either by acceptable performance on a standardized test or by completing level five of that language (or the equivalent), with at least a grade of C, is required. You must submit your selected language to your area governing committee for approval.

With the approval of the department, a foreign student may offer English as a foreign language if the native language is other than English. Proficiency in English will be evaluated by the level of performance on the UCLA entrance examination in English for foreign students, together with achievement in graduate work.

A second alternative is to study sources in an allied field such as history, political science, linguistics, psychology, economics, philosophy, or mathematics. You would be permitted to substitute for the language requirement a set of three upper division or graduate courses offered at UCLA and passed with a grade of at least B. Contact the department for further information and guidelines for language substitutions.

## Course Requirements

In addition to the departmental requirements, area programs and some subareas have their own course requirements for affiliated students.

**Before the Master's Paper Review:** Nine courses (36 units) are required.

(1) Sociology 202A-202B (must be taken in the first year).

(2) A two-quarter graduate-level methodology sequence of which there are several alternatives (e.g., the survey methods course, the demographic methods course, etc.). The methodology series is presently numbered 211A through 218B.

In choosing a methodology sequence, you should note that some of the Ph.D. area programs and subprograms require particular methodology sequences.

(3) Five 200-level courses in sociology, excluding Sociology 202A-202B, 211A through 218B, and the 289, 290, 292, 293, 294, and 295 series.

Because four of the five area programs require successful completion of Sociology 210A-210B, you would ordinarily take these courses in your first two years and are strongly urged to do so in your first year.

Students intending to affiliate with an area would do well to satisfy some of its requirements in the first two years. Contact the department for information about entering the area programs.

**After the Master's Paper Review:** Two courses (eight units) are required. An additional methodology sequence (from courses 211A through 218B) must be completed before the awarding of the Ph.D. degree.

Course requirements for the five area programs are listed below. Contact the graduate affairs assistant or area directors for more specific details and for other requirements such as special papers.

(1) *Ethnomethodological, Phenomenological, and Observational Sociologies:* Sociology 222; at least three courses from 223, 229, 251, 252, 266, 267, 284; an additional methods sequence selected from courses 217A-217B, 218A-218B, or C244A, C244B (two of these sequences must be completed before the oral qualifying examination); courses 293A-293B-293C. If you plan to take one field examination

in this area, you should take at least three additional courses significantly related to this field; if you plan to take two field examinations in this area, you should take six additional courses (courses 223, 229, 251, 252, 266, 267, and 284 may be applied toward this requirement).

(2) *Macrosociology:* Sociology 211A-211B, 228A-228B, 294A-294B-294C, and three relevant graduate courses in any department approved by the director and your adviser.

(3) *Methods and Models:* Sociology 232 and 295A-295B-295C.

**Advanced Statistics Specialty:** Courses in calculus, linear algebra, and mathematical statistics (preferably taken as an undergraduate) and a program of coursework and supervised individual study, selected in consultation with the area faculty, designed to provide suitable depth of coverage of an appropriate range of statistical techniques.

**Applied Sociology and Evaluation Research Specialty:** Sociology 210C, 280, and courses in calculus and linear algebra (preferably taken as an undergraduate).

**Formal Demography Specialty:** Sociology 210C, 213A-213B, 240, and courses in calculus and linear algebra (preferably taken as an undergraduate).

**Mathematical Sociology Specialty:** Sociology 281, courses equivalent to Mathematics 115A, and other mathematics courses that may be required for particular specialties.

**Survey Research Method Specialty:** Sociology 216A-216B and a graduate-level course in sampling, such as Public Health 201H or Management 215E.

(4) *Social Organization and Institutions:* Sociology 290A-290B-290C and a second methods sequence selected from courses 212A-212B, 213A-213B, 214A-214B, 215A-215B, 216A-216B, or 217A-217B.

(5) *Social Psychology:* Completion of an undergraduate program equivalent to at least two courses from Sociology 150 through 157 and at least two courses in psychology, selected from the fields of learning, language and communication, personality, social psychology, and abnormal psychology; Sociology 224A-224B, 289A-289B-289C; a second methods sequence, in addition to the one required for the M.A., selected from courses 214A-214B, 215A-215B, 216A-216B, or 217A-217B.

Courses in the 500 series (596, 597, 599) are normally taken in preparation for the master's paper review, the field examinations, and for dissertation research. They may not be applied toward the course requirements for the degree.

## Master's Paper Review

By the end of your second year of study, you must submit an acceptable master's paper for approval by the general faculty. The paper

must demonstrate a general competence in sociological theory, methodology, and selected substantive areas and in intellectual attainment.

The paper should demonstrate that you (1) have 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 your capacity to do Ph.D.-level work.

Upon review of the paper, any of the following options may be recommended:

(1) The paper is passed. You are granted the M.A. and permitted to proceed to the Ph.D.

(2) The paper is passed conditionally. You are granted the M.A. and permitted to proceed to the Ph.D. after completion of specified revisions of the paper.

(3) You are granted a terminal M.A.

(4) The paper is not acceptable (you may resubmit at a later time or be asked to withdraw).

If you enter UCLA with an M.A. degree in Sociology from another institution, you will normally come up for a master's paper review in your first quarter of residence at UCLA, and under no circumstances later than the third quarter of residence. In this review, the department will determine whether you may proceed directly to preparation for the field examinations or whether additional work must 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, you should submit for the master's paper review a transcript from the university at which the M.A. degree was earned.

Contact the department for further details on master's paper review.

## Field and Qualifying Examinations

The department requires you to pass two field examinations before taking the University Oral Qualifying Examination for the Ph.D. The emphasis here is on mastery and depth of understanding in two areas of specialized study. Field examinations are administered and evaluated under guidelines established by area programs. You may take both or just one of your field examinations in the area with which you are affiliated. Each area program also has procedures enabling unaffiliated students to take field examinations in that area. Details are available from area directors and from the graduate affairs assistant.

If the performance on the field examination is satisfactory and the foreign language requirement has been fulfilled, you may nominate a doctoral committee and take the University Oral Qualifying Examination. You must prepare a two-page abstract of the dissertation

proposal for distribution to the entire departmental faculty no later than one week before the examination.

### Final Oral Examination

The optional final oral examination for the Ph.D. degree is given by the doctoral committee no later than six months after the completion of the dissertation. A decision to waive the final examination is optional on the part of the Ph.D. committee.

### Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

### Lower Division Courses

**1. Introductory Sociology.** Students with credit for course 101 will not receive credit for this course. Survey of the characteristics of social life, the processes of social interaction, and the tools of sociological investigation.

**9. Computers and Social Change.** Lecture, two hours; laboratory, three hours. The impact of technological change from computers and computing on people, jobs, business firms, industries, and educational and legal institutions. Whenever needed for an adequate understanding of those topics, the course also provides information on selected aspects of contemporary computers and the history of computing. In addition to reading assignments and lectures, the course involves direct experience in a computing laboratory. Mr. McFarland

**18. Interpretation of Quantitative Data.** Prerequisite or corequisite: course 1 or 101. Satisfies the statistics requirement for the major in sociology. Reading graphs and tables; statistical description using indices of central tendency, dispersion, and association; simple linear regression. Probability; the binomial, normal, t, and chi-square distributions and hypothesis testing based on them. Examples are drawn from recent issues of *American Sociological Review* or other leading sociological journals.

### Upper Division Courses

**101. Principles of Sociology.** Students with credit for course 1 will not receive credit for this course. Designed for upper division students who have not taken course 1. A more intensive introduction to sociology than is given in course 1. May not be applied toward the major requirements.

**102A-102Z. Special Topics in Sociology.** Prerequisite: upper division standing (some sections may require prior coursework or consent of instructor). A study of selected current topics of sociological interest. See *Schedule of Classes* for topics and instructors. May be repeated for credit and may be applied as elective units toward the sociology major.

**109. Introduction to Sociological Research Methods.** A 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. Mr. Bailey, Mr. TenHouten

**110. Research Methods in Policy Analysis and Evaluation.** Prerequisite: course 129 or consent of instructor. Recommended: course 109. Provides a basic knowledge of approaches for identifying and analyzing social problems and for the assessment of policies and interventions for their control and management. Mr. Freeman, Ms. Zucker

**112. Development of Sociological Theory.** A comparative survey of basic concepts and theories in sociology from 1850 to 1920; the codification of analytic schemes; a critical analysis of trends in theory construction. Mr. Alexander, Mr. Horton, Mr. Lopez

**113. Contemporary Sociological Theory.** A critical examination of significant theoretical formulations from 1920 to the present; an analysis of the relation between theoretical development and current research emphasis. Mr. Alexander, Mr. TenHouten

**114. Marxist Sociology.** The course stresses the 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 the theory requirement for the major. Mr. Horton

**115. Experimentation and Laboratory Methodology in Sociology.** Prerequisites: course 18 or equivalent introductory statistics and introductory social psychology. The course provides opportunities for students to participate as observers, subjects, and experimenters in a variety of laboratory simulations of social and political settings and to use a number of computer-supported techniques as aids in conducting, analyzing, and interpreting their experiences in these settings. Mr. Shure

**116. Introduction to Mathematical Sociology.** Prerequisites: course 18, Mathematics 2, 4A (a course whose content includes introductions to probability theory, matrix algebra, and differential and integral calculus), or equivalent. Mathematical treatments 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 the deductive and computational aspects of mathematics). Mr. McFarland

**117. Field Research Methods.** Lecture, two hours; discussion, one hour. Prerequisites: upper division standing and consent of instructor. Fieldwork and extensive field notes are required. Theory and practice of field research, with particular emphasis on the interrelations between fieldwork role and substantive findings. Mr. Emerson, Mr. Rabow

**118. Statistical and Computer Methods for Social Research.** Lecture, three hours; laboratory, one hour. Prerequisite: course 18. A continuation of course 18, the course covers 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. Mr. Bonacich, Mr. TenHouten

**120. Social Change.** A study of patterns of social change, resistance to change, and change-producing agencies and processes. Mr. Alexander, Mr. Surace

**121. Organizations and Society.** Sociological analysis of organizations and their social environment. An introduction to basic theories, concepts, methods, and research on the behavior of organizations in society. Mr. Alvarez, Mr. Grusky, Mr. Surace

**122. Mass Communications.** Lecture, three hours. Fieldwork may be required. Development, functions, and organization of the mass media in industrialized societies; social theory and social research in mass communications; short-term effects of the media; the media and socialization; mass media and the shaping of public opinion; prospects for media in the Third World. Technological innovations and their effects on future social systems are discussed. Mr. Levine

**123. Social Stratification.** An analysis of American social structure in terms of evaluational differentiation. Topics include criteria for differentiation, bases for evaluation, types of stratification, the composition of strata and status systems, mobility, consequences of stratification, and problems of methodology. Mr. Lopez, Mr. McFarland

**124. Ethnic and Status Groups.** The characteristics of the "visible" ethnic groups (e.g., Japanese, Mexican, and Black); their organization, acculturation, and differentiation. The development, operation, and effects of selective immigration and population mobility. The status of the chief minorities in the continental U.S., with comparative materials drawn from Jamaica, Hawaii, and other areas. Mr. Alvarez, Mr. Kitano, Mr. Prager

**125. Urban Sociology.** Lecture, three hours. Description and analysis of urbanization and urbanism in the United States and the world. Mr. Light, Mr. Oliver

**126. 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 the correlates of fertility, mortality, and migration. Mr. Bailey, Ms. Oppenheimer, Mr. Sabagh

**127. Sociology of Family Demographic and Economic Behavior.** An examination of demographic behavior associated with the social organization of the family and its relationship to the society's economic system. The first half of the course deals with American and European historical studies of family socioeconomic and demographic characteristics and behavior. The second half focuses on the U.S. experience since the 1930s. Ms. Oppenheimer

**128. Occupations and Professions.** Description and analysis of representative occupations and professions, with emphasis on the contemporary United States. Mr. Light

**129. Social Policies and Social Programs.** Lecture, three hours; discussion, one hour. Prerequisites: junior standing, course 1 or 101, or consent of instructor. Analysis of problems of social disorganization with emphasis on social structural explanations. Provides consideration of social policies and intervention strategies related to control and management of social problems. Mr. Freeman, Ms. Zucker

**130. Social Processes in Africa.** A course in comparative sociology. A study of selected processes in African societies, primarily in the fields of urban sociology, social structure, and social change, involving an interdisciplinary approach.

**131. Latin American Societies.** A descriptive survey of the major Latin American societies, emphasizing their historical backgrounds and their emergent characteristics, with special attention to the relations between rural and urban life. Mr. Lopez, Mr. Zeitlin

**132. Population and Society in the Middle East.** Prerequisites: upper division standing and consent of instructor. A survey of the Middle Eastern societies; their historic and environmental bases; the contemporary demographic and cultural situation. Mr. Sabagh

**133. Comparative Sociology of the Middle East.** Prerequisites: upper division standing and consent of instructor. A review of the unity of Middle Eastern societies in Islam and their diversity exemplified by such nomadic peoples considered throughout.

**134. 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. Ms. Cheng

**136. American Society.** Analysis of major institutions in the U.S. in historical and international perspective. The course focuses on topics such as industrialization, work, the state, politics, community, the family, religion, and American culture. Theories of social change, conflict, and order are applied to the case of the U.S. Mr. Lo, Mr. Roy, Mr. Zeitlin

**137. Comparative Studies of Jewish Communities in the U.S. and Abroad.** The history, distribution, structure, and functioning of major Jewish communities are covered, with particular focus on North America and Israel. Interrelationships and sources of conflict between Jews and Gentiles in Western countries are taken up. More generally, the economic and social integration of Diaspora Jewish communities is treated. Fieldwork may be required. Mr. Levine

**138. Comparative and Historical Sociology.** Prerequisite: course 1 or 101. A survey of the central themes of comparative and historical studies in sociology. The various aspects of the development of modern society are covered, including the development of nation-state, the emergence of capitalism, industrialization, and population growth. Variation in contemporary society is viewed from a variety of theoretical perspectives. Ms. Cheng, Mr. Lo, Mr. Roy

**140. Political Sociology.** The contributions of sociology to the study of politics, including the analysis of political aspects of social systems, the social context of action, and the social bases of power. Mr. Prager, Mr. Roy, Mr. Zeitlin

**141. Economy and Society.** The sociology of economic life, with emphasis on principal economic institutions of the United States. Mr. Light, Mr. Lo, Mr. Zeitlin

**142. 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 the influence of the contemporary society on the family.

**M143. Sociology of Education.** (Same as Education M108.) Prerequisite: course 1 or 101. Study of social processes and interaction patterns in educational organizations; the relationship of such organizations to aspects of society, social class, and power; social relations within the school, college, and university; formal and informal groups, subcultures in educational systems; roles of teachers, students, and administrators. Mr. O'Shea, Mr. Rabow, Ms. Wrigley

**C144A. Conversational Structures I.** (Formerly numbered 144A.) Lecture, three hours. An introduction to some of the structures which are employed in the organization of conversational interaction, such as turn-taking organization, the organization of repair, and some basic sequence structures with limited expansions. May be concurrently scheduled with course C244A. Mr. Schegloff

**C144B. Conversational Structures II.** (Formerly numbered 144B.) Lecture, three hours. Prerequisite: course C144A. A consideration of some of the more expanded sequence structures, story structures, topical sequences, and the overall structural organization of single conversations. May be concurrently scheduled with course C244B. Mr. Schegloff

**145. Sociology of Deviant Behavior.** An examination of the leading sociological approaches to the study of deviation and a general survey of the major types of deviation in American society. Mr. Freeman, Mr. Horton, Mr. Surace

**146. Criminology.** Theories of the genesis of crime; factors in the organization of criminal behavior from the points of view of the person and group; criminal behavior systems. Mr. Katz, Mr. Rabow

**147. Control of Crime.** Theories of punishment; methods of dealing with convicts; social organization of police, courts, prisons, probation, and parole. Fieldwork is required. Mr. Emerson, Mr. Rabow

**148. Normal Environments.** Structural interpretation of the concerted production, management, and alteration of perceivedly normal interpersonal environments. Fieldwork is required. Mr. Garfinkel, Mr. Pollner

**149. A 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 the programmatic problems of analytic sociology. Fieldwork is required. Mr. Garfinkel, Mr. Pollner

**150. Collective Behavior.** Prerequisites: courses 1 and 18, or equivalent, and 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. Mr. Seeman, Mr. Turner

**151. Culture and Personality.** Prerequisites: courses 1 and 18, or equivalent, and upper division standing. Theories of the relation of variations in personality to culture and group life, in primitive and modern societies, and the influence of social role on behavior. Mr. Turner

**152. Group Processes.** Systematic study of the formation, structure, and functioning of groups; analysis of group processes and group products from a variety of theoretical viewpoints; implications of various research techniques. Mr. Bonacich, Ms. Zucker

**153. Process and Socialization in the Family.** Prerequisites: courses 1 and 18, or equivalent, and upper division standing. Examination of the processes of interaction, decision making, role differentiation, conflict, integration, and socialization within the family and their interrelations with society.

**154. Social Psychology: Sociological Approaches.** A survey of the contribution of sociologists to theory and research in social psychology, including theories of social control; conformity and deviation; reference groups; and interaction process. Mr. Bonacich, Mr. Rabow, Ms. Zucker

**155. Intergroup Conflict and Prejudice.** A study of the 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; the effects of minority status on the individual; and the possibilities for attitude and behavior change. Mr. Oliver, Mr. Seeman

**156. Psychoanalytic Sociology.** Prerequisites: courses 1 or 101 and 18. Recommended: a course in theory (course 112 or 113) and in social psychology. Designed to review the models of integration between psychoanalysis and sociology. This analytical perspective is applied to selected substantive areas and social processes. The areas include, but are not limited to, group development, delinquency, and deviance. The processes include socialization, identity and self formation, role taking and role making. Mr. Rabow

**157. Sociology of Mental Illness.** Analysis of the major sociological and social psychological models of madness. Study of the social processes involved in the production, recognition, labeling, and treatment of "mental illness." Mr. Emerson, Mr. Goldstein, Mr. Pollner

**M158. Death and Suicide: Psychological and Sociological Aspects.** (Same as Psychology M163.) Prerequisite: junior standing. The definition and taxonomy of death; the new permissiveness and taboos relating to death; the romanticization of death; the role of the individual in his own demise; the modes of death; development of ideas of death through the life span; ways in which ideas of death influence the conduct of lives; the impact of dying on the social structure surrounding the individual; preventive, interventive, and postventive practices in relation to death and suicide; partial death; megadeath; lethality; the psychological autopsy; the death of institutions and cultures. P/NP grading recommended (letter grading is required if course is to be applied toward the psychology major). Mr. Shneidman

**159. The Sociology of Knowledge.** Prerequisite: course 1 or equivalent. A study of the social production of modes of thought and forms of knowledge. The course includes the study of ways in which bodies of knowledge and cognitive styles are produced, used, and transformed in every day, organizational, and extraordinary contexts. Mr. Pollner, Mr. TenHouten

**160. The Demography and Sociology of Women's Economic Roles.** Prerequisites: courses 1 and 18 or Mathematics 50 or Psychology 41 or Economics 40 or Public Health 100A, or consent of instructor. A demographic and sociological analysis of the factors affecting women's economic roles in the world of work and the family. Topics include demographic determinants of women's socioeconomic roles, women's changing place in the occupational structure, men's and women's contribution to the socioeconomic status of the family, the socioeconomic position of women without men to support them, future trends, and social policy affecting women's status. Ms. Oppenheimer, Mr. Treiman

**161. The Social Organization of Psychiatric Treatment.** Strongly recommended prerequisite: course 157. Review of current research and theory on psychiatric treatment processes and treatment organizations, including mental hospitals and community mental health organizations. Mr. Emerson, Mr. Grusky

**162 Sociology of Law.** The political impact of court decisions; legalization of social relations in modern institutions; social movements toward equal justice; the judicial role; experience of participants in legal processes; common sense conceptions of justice. Mr. Katz

**163. Medical Sociology.** Prerequisite: course 1 or 101 or consent of instructor. The course provides majors in sociology and other social sciences, as well as students preparing for health science careers, with an understanding of health-seeking behavior and the interpersonal and organizational relations that are involved in the receipt and delivery of health services. Mr. Goldstein

**164. White-Collar Criminality.** Lecture, three hours. Prerequisite: course 146 or consent of instructor. Theories of the genesis of crime applied to criminal behavior by business and political elites. Includes a history and evaluation of criminal law enforcement against white-collar illegalities. Mr. Katz

**197. Undergraduate Seminar.** (Formerly numbered 181-186.) Prerequisites: upper division standing, major in sociology, and 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. A course of independent study designed for graduate or senior undergraduate students who (1) desire a more advanced or specialized treatment of an area covered in the 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 Study for Honors.** Prerequisite: honor program standing:

**199HA.** Design of a research project to serve as the student's honors thesis. A research proposal, detailed bibliography, and regular meetings with the sponsoring faculty member are required.

**199HB.** Continuation of work initiated in course 199HA. A series of progress reports are prepared in consultation with instructor.

**199HC.** Completion of the written report or honors thesis.

## Graduate Courses

**201A-201B. Proseminar in Sociology.** Prerequisite: graduate standing. Designed primarily for graduate students in the first year of residence. A comprehensive survey of basic concepts and theories in the major fields of sociology. Mr. Alexander, Mr. Lopez

**202A-202B. Sociological Analysis.** Lecture, two hours; discussion, one hour. Prerequisite: graduate standing. Required of first-year sociology graduate students. Considers a number of exemplary works in contemporary sociology in terms of the interplay of theory, method, and empirical substance. The goal is to familiarize entering students with a broad range of sociological practice and to illuminate through critical reading and analysis how various kinds of sociological inquiry work. The course is team taught and mixes lectures and discussion. In Progress grading.

Mr. Alexander, Mr. Schegloff

**210A-210B. Intermediate Quantitative Methods I, II.** Prerequisite: course 18 or equivalent. An intermediate-level treatment of fundamentals of statistical theory and procedures: probability theory, basic distributions (normal, binomial, *t*, chi-square, *F*, etc.), their interrelations, and statistical procedures based on them; analysis of contingency tables; multiple and partial correlation and regression; analysis of variance and experimental designs; the general linear model; systems of equations. Additional special topics include use of computers; log-linear models; factor analysis, discriminant function analysis; scaling and measurement; sampling design; nonparametric techniques and measures; matrix algebra if used in coverage of listed topics. In Progress grading.

Mr. Bonacich, Mr. McFarland, Mr. TenHouten

**210C. Intermediate Quantitative Methods III.** Prerequisite: course 210B. Not required for the M.A. or Ph.D. degree. The course covers additional and more advanced multivariate techniques of particular value to sociologists.

Mr. Bonacich

**211A-211B. Comparative and Historical Methods:**

**211A. Strategies of Research and Conceptualization.** Prerequisite: consent of instructor. Topics include relationship of theory and fact to the social sciences, the logic of comparative and historical analysis, and substantive paradigms of comparative and historical analysis. Reading involves methodological examination of basic works in representative problem areas. In Progress grading.

**211B. Research Techniques.** Prerequisite: course 211A. Topics include the problem of evidence, quantitative and qualitative data. Techniques of data analysis, including use of manuscript census, content analysis, collective biography, and secondary analysis, are discussed.

Mr. Light, Mr. Lo, Mr. Prager, Mr. Roy

**212A-212B. Marxist Methodology.** Prerequisite: course 112 or consent of instructor. Practice in the dialectical method of attaining scientific knowledge about society as a process and mode of production. A critical examination of methodological issues and techniques and practical field research.

Mr. Horton

**213A-213B. Techniques of Demographic and Ecological Analysis.** Prerequisite: course 210A or equivalent. Procedures and techniques for the collection, evaluation, and analysis of demographic and ecological data; models of population and ecological structure and change; applications to the study of social structure and social change.

Mr. Sabagh

**214A-214B. The Measurement of Sociological Variables.** Prerequisites: courses 210A-210B and consent of instructor. Theory and technique of measurement in sociology and social psychology; construction, application, and evaluation of measurement techniques, especially the forms of scaling. In Progress grading.

Mr. TenHouten

**215A-215B. Experimental Sociology.** Prerequisites: course 210A or equivalent and consent of instructor. A course designed to provide students with the basic fundamentals of the experimental method, particularly as it is used in social psychology. In Progress grading.

Mr. Grusky, Mr. Rabow, Mr. Shure

**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.

Mr. Levine, Mr. Treiman

**217A-217B. Ethnographic Fieldwork.** Prerequisite: consent of instructor. Theories and techniques of ethnographic fieldwork. The course considers the kinds of problems amenable to ethnographic approaches, methods, and techniques for doing fieldwork, and ethical problems involved in such research. In Progress grading.

Mr. Emerson, Mr. Pollner

**218A-218B. Ethnomethodological Methods.** Prerequisite: consent of instructor. Examination of techniques used in ethnomethodological research, practice in the critical evaluation of research, and directed experience in the conduct of an extended investigation employing ethnomethodological procedures. In Progress grading.

Mr. Garfinkel

**220. Role Theory.** Prerequisites: graduate standing and consent of instructor. A review of theories and research dealing with social roles, with special emphasis on roles in social interaction and in formation of the social self.

Mr. Turner

**221. Social Ecology.** Prerequisites: courses 18 and 126, or equivalent, and graduate standing, or consent of instructor. An examination of the 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 the effects of the physical environment on humans.

Mr. Bailey

**222. Foundations of Ethnomethodological, Phenomenological, and Analytic Sociologies.** Lecture, three hours. Prerequisites: graduate standing or consent of instructor. The course is designed to acquaint students with basic issues, methods, and topics of ethnomethodological, phenomenological, conversation-analytic, and related varieties of inquiry. The first part considers central themes such as the world of everyday life, the problem of rationality, rules/norms and tacit knowledge, the problem of social order, speaking and discourse, constitutive practices, and the production of ordinary interaction. The second part features guest presentations by affiliated faculty.

**223. Phenomenological and Interactionist Perspective on Selected Topics.** Lecture, three hours. Phenomenological and symbolic interactionist perspectives are compared by examining a particular body of live or currently unresolved substantive issues. Topics vary; attention focuses on development of phenomenological and interactionist thought on the topic of concern, with special concern for ambiguities and divergences both within and between the two approaches. When relevant, attention is given to the logical and historical relations of phenomenology and interactionism of pragmatist, existentialist, and ordinary language philosophies.

Mr. Katz

**224A-224B. Problems in Social Psychology.** Prerequisites: course 210A and consent of instructor. The basic course for graduate students intending to specialize in social psychology. **224A** examines systematically major theoretical contributions to the field. **224B** introduces the student to current work being done in the department in several subfields.

**225A-225B. Demographic Perspectives on the Relationship of Family and Economic Systems.** Prerequisites: courses 210A-210B or consent of instructor. An examination of the interrelationship of family and economic systems in societies at different levels of economic development, focusing particularly on the U.S. experience. Central to the course is (1) an 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 the relationship of family and economic systems over time. **225A** is primarily devoted to lectures and readings. **225B** carries students into individual research projects involving a term paper and classroom reports of results.

Ms. Oppenheimer

**227. The Sociology of Knowledge.** Prerequisite: graduate standing or consent of instructor. A survey of theories and research concerning social determinants of systems of knowledge and the role of intellectual and artistic elites in Western societies.

Mr. Horton

**228A-228B. Critical Issues in Macrosociology.** Seminar, three hours. Prerequisite: graduate standing. A 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. It usually is team taught by faculty of varying orientations.

**229. Processes of Social Control.** Prerequisite: graduate standing or consent of instructor. Current theory and research on social control processes. Specific topics include conceptual issues, informal social control mechanisms, the relation between informal and formal control systems, typification and practical concerns in the processing of social control cases, and problems of "rationality" in social control decision making.

Mr. Emerson

**230. Theories of Deviance.** An examination of various sociological approaches to the study of deviant behavior, with emphasis on anomie theory as the major orientation today. Special attention to the problems of defining deviance and the articulation of sociological and psychological levels of explanation.

Mr. Emerson, Mr. Rabow, Mr. Surace

**M231. The Structure of Occupations.** (Same as Education M231.) Lecture, two hours; discussion, two hours. Explores shifts in the occupational structure of the United States, changing skill requirements for jobs, the effects of automation on work environments, and the role of formal and informal education in preparing people for occupations.

Mr. O'Shea, Ms. Wrigley

**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. An ongoing survey that employs Computer-Assisted Telephone Interviewing is available as a resource for the course.

Mr. Shure

**233. Foundations of Political Sociology.** Lecture, three hours. Prerequisite: graduate standing or consent of instructor. A survey of the field of political sociology, oriented around critical themes in the major theoretical traditions and contemporary exemplars. Special attention to competing perspectives on power, the theory of the state, and the relationship of class structure to politics.

Mr. Lo, Mr. Prager, Mr. Roy

**234. Sociology of Community Organization.** Prerequisites: graduate standing and consent of instructor. A survey of recent and classical research and literature dealing with predominantly political institutions, the problem of order, and the organization of communal life in the village and the metropolis.

**236. Social Change in the Middle East.** An analysis of the sources, extent, and types of social change in the Middle East, with emphasis on the origin and consequences of industrialization and urbanization.

Mr. Sabagh

**237. Social Stratification in the Middle East.** Modes of social differentiation in traditional Middle Eastern societies, localism and tribalism, the counter influence of processes leading to the recurrent emergence of societies of large scale and their distinctive structural characteristics. Mr. Sabagh

**238A-238B. Fieldwork in Minority Communities.** Seminar, two hours. Prerequisites: graduate standing and consent of instructor. Designed to supply graduate students with conceptual and methodological skills for studying minority communities. Greater Los Angeles is the laboratory. Both ethnographic and survey research techniques are emphasized. In Progress grading. Mr. Levine

**240. Mathematics of Population.** Prerequisite: prior knowledge of matrices, calculus, and probability theory. Discrete and continuous deterministic and probabilistic models of the growth and composition of a one-sexed population classified by age, plus selected topics on more complicated population models. Mr. McFarland

**C244A. Conversational Structures I.** Lecture, three hours; discussion, one hour. An introduction to some of the structures which are employed in the organization of conversational interaction, such as turn-taking organization, the organization of repair, and some basic sequence structures with limited expansions. May be concurrently scheduled with course C144A. Graduate students have additional assignments and/or meet as a group one additional hour each week. Mr. Schegloff

**C244B. Conversational Structures II.** Lecture, three hours; discussion, one hour. Prerequisite: course C244A. A consideration of some of the more expanded sequence structures, story structures, topical sequences, and the overall structural organization of single conversations. May be concurrently scheduled with course C144B. Graduate students have additional assignments and/or meet as a group one additional hour each week. Mr. Schegloff

**245. Cultural Studies.** Discussion, three hours. Prerequisite: consent of instructor. The course allows graduate students to become familiar with the range of contemporary studies of culture. Taking as its assumption that symbolic patterns have relative autonomy vis-a-vis social structure and personality, it examines hermeneutical, structuralist, and functionalist versions of this general argument. It proceeds subsequently to contemporary versions of "interpretive" techniques: structuralist, functionalist, Weberian, Durkheimian, and semiotic. Theory, method, and substantive empirical issues are simultaneously addressed. Mr. Alexander

**247. Neurosociology.** Prerequisites: graduate standing and consent of instructor. Relations between aspects of social structure and higher cortical functions. Mr. TenHouten

**248. The Sociology of Cognitive Development.** Prerequisite: graduate standing or consent of instructor. Analysis of ways in which mental processes are structured and organized by positions and practices in the social world, and by change and development in society. Mr. TenHouten

**M249A. Sociocultural Aspects of Health and Illness: Health Professions.** (Formerly numbered M249B.) (Same as Public Health M283F.) Lecture, three hours. Prerequisites: Public Health 182, three courses in psychology, sociology, or anthropology, or equivalent, and consent of instructor. Sociological examination of the concepts "health" and "illness" and role of various health professionals, especially physicians. Attention to the meaning of professionalization and professional-client relationships within a range of organization settings. Mr. Goldstein

**M249B. Sociocultural Aspects of Health and Illness: Health Behavior.** (Formerly numbered M249C.) (Same as Public Health M283G.) Seminar, three hours. Prerequisites: Public Health 182, three courses in psychology, sociology, or anthropology, or equivalent, and consent of instructor. Sociocultural factors affecting differential patterns of health behavior, illness behavior, and sick role behavior. Mr. Berkanovic

**250. Methodological Problems.**

Mr. Bailey, Mr. TenHouten

**251. Topics in the Problem of Social Order.**

Mr. Garfinkel

**252. Criminology.**

Mr. Katz, Mr. Rabow

**253. Quantitative Methods in Sociology.**

Mr. Bailey, Mr. Bonacich, Mr. Freeman

**254. Sociology of Law.** (Formerly numbered 254B.) Social control functions of law and legal institutions, with particular attention to the contrast between law-ways of stateless and tribal societies and contemporary American legal processes and institutions, primarily those of criminal law.

Mr. Emerson, Mr. Katz, Mr. Prager

**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 the history of the development of sociological theory.

**256. Demography.**

Mr. Bailey, Mr. Sabagh

**258. Sociology of Religion.**

**259. Social Structure and Economic Change: Historical and Comparative Perspectives.**

Ms. Cheng, Mr. Surace, Mr. Zeitlin

**260. Industry and Society.**

Mr. Light, Mr. Surace

**261. Ethnic Minorities.**

Mr. Levine, Mr. Seeman

**M282. Selected Problems in Urban Sociology.** (Same as Afro-American Studies M200C.) Seminar. Prerequisite: consent of instructor.

Mr. Light, Mr. Oliver

**263. Social Stratification.**

Mr. Treiman

**264. Professions in the American Society.**

Ms. Oppenheimer

**265. Problems in Organization Theory.**

Mr. Grusky, Ms. Zucker

**266. Selected Problems in the Analysis of Conversation.** Prerequisite: course C144A or consent of instructor.

Mr. Schegloff

**267. Selected Problems in Communication.**

Mr. Pollner, Mr. Schegloff

**268. Selected Problems in Psychoanalytic Sociology.** Discussion, three hours. Recommended prerequisite: at least one year of methods courses. The course focuses on selected problems in the interpretation of sociology and psychoanalysis. These problems may be substantive (group development, socialization, culture, deviance, collective behavior) or methodological; the latter focuses on clinical fieldwork and experimental use of psychoanalytic and sociological techniques.

Mr. Rabow

**269. Collective Behavior.**

Mr. Turner

**270. Selected Problems in Socialization.**

Mr. Turner

**271. Ethnomethodology.**

Mr. Garfinkel

**272. Topics in Political Sociology.**

Mr. Roy, Mr. Surace, Mr. Zeitlin

**273. Attitudes and Social Structure.**

Mr. Seeman

**274. Selected Problems in the Sociology of Africa.** Prerequisites: graduate standing and consent of instructor. Selection of problems in the sociology of Africa from among the following fields: urbanization, racial and ethnic relations, national integration, and political change.

**276. Selected Topics in the Sociology of East Asia.** Prerequisites: graduate standing and consent of instructor. The seminar analyzes 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, the city and the countryside, minority nationalities, class struggle under socialism, etc.; (3) China and Japan: two models of development.

Ms. Cheng

**278. Selected Problems and Issues in Mass Media Research.** Seminar, two hours. Prerequisites: graduate standing and consent of instructor. Foci include methodological problems (surveys, panel studies, content analysis); research on audiences; problems of comparative, international media research; exposure and socialization; social, psychological, and political effects of technological innovation.

Mr. Levine

**280. Seminar in Evaluation Research.** Prerequisite: graduate standing. The seminar covers both the technical and political aspects of implementing evaluation research studies. The role of evaluation research in social policy development is considered, as well as procedures for undertaking process and impact evaluations. S/U or letter grading.

Mr. Freeman

**281. Selected Problems in Mathematical Sociology.** Prerequisite: Mathematics 4B or consent of instructor. An exploration of some mathematical models of sociological processes. Possible topics include models of small groups, social mobility, kinship relations, organizations, social interaction.

Mr. Bonacich, Mr. McFarland

**282. Organizations and the Professions.**

**284. Topics in Mental Health and Illness.** Prerequisites: course 157 or equivalent and graduate standing.

Mr. Emerson, Mr. Grusky, Mr. Pollner

**285A-285Z. Special Topics in Sociology.** Seminar, three hours. Prerequisite: graduate standing. A seminar on selected current topics of sociological interest. See *Schedule of Classes* for topics and instructors. May be repeated for credit.

**M287A-M287B. Population Policy and Fertility.** (Same as Public Health M274A-M274B.) Lecture, three hours; discussion, one hour. Prerequisites: Public Health 100A, 112, 171A, 171B, or equivalent, graduate standing, and consent of instructor. Course M287A is prerequisite to M287B. Analysis of research concerning major issues in population policy, with special emphasis on human fertility.

Ms. Blake

**M287C. Seminar in Population Policy and Fertility.** (Same as Public Health M274C.) Seminar, three hours; discussion, one hour. Prerequisites: courses M287A-M287B or equivalent, graduate standing, and consent of instructor. Review of current literature in population policy and fertility in conjunction with student research reports. May not be repeated for credit.

Ms. Blake

**289A-289B-289C. Social Psychology Seminar (2 units each).** Lecture, one hour; discussion, one hour. Prerequisite: graduate standing. Required of students affiliated with the social psychology area program, but open to all graduate students in good standing. A forum for the presentation of advanced work in social psychology designed to develop an ability to understand, critically evaluate, and present research in fields relevant to the study of social psychology. May be repeated for credit. S/U grading.

**290A-290B-290C. Social Organization and Institutions Seminar (2 units each).** Lecture, one hour; discussion, one hour. Prerequisite: graduate standing. Required of students affiliated with the social organization and institutions area program, but open to all graduate students in good standing in the department. A seminar for the presentation of advanced work in social organization and institutions designed to contribute to the 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.

Mr. Oliver

**291. Moral Solidarity in Communities.** Comparative analysis of social solidarity and the collapse of social solidarity in voluntary and traditional communities. Contrasts more and less solidarity types, with special reference to utopian communities and developmental processes.

Mr. Light

**292A-292B-292C. Research Development.**



**293A-293B-293C. Colloquium in Ethnomethodological, Phenomenological, and Observational Sociologies (2 units each).** Prerequisites: courses C144A and C144B or 217A-217B or 218A-218B and 222, or consent of instructor. Participants present ongoing work and read and discuss exemplary past work of common interest. A continuing colloquium in which participation is expected of faculty and graduate students affiliated with the 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 Seminar in Macrosociology.** Discussion, two hours. Prerequisite: consent of instructor. Required of students affiliated with the macrosociology area program. Training in the conduct, presentation, and critical evaluation of original research and analysis of substantive and methodological questions in macrosociology. In Progress grading. Mr. Zeitlin

**295A-295B-295C. Seminar in Methods and Models (2 units each).** Ongoing seminar in the methods and models area program. A forum in which faculty, students, and visitors make presentations and obtain feedback on research being planned or conducted or recently completed. It includes didactic presentations on important developments in the area. Students are required to make a presentation each quarter they are enrolled for credit. S/U grading.

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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 a teaching assistant in the Sociology Department or equivalent. A special course for teaching assistants designed to deal with the 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. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. 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 paper for M.A. degree or Ph.D. qualifying examination.

**599. Research in Sociology for Ph.D. Candidates (4 to 12 units).**

José Miguel Oviedo, Ph.D. (*Spanish*)  
Stanley L. Robe, Ph.D. (*Spanish*)  
John A. Crow, Ph.D., *Emeritus*  
Anibal Sánchez-Reulet, Ph.D., *Emeritus*  
Marion A. Zeitlin, Ph.D., *Emeritus*

#### Associate Professors

E. Mayone Dias, Ph.D. (*Portuguese*)  
Susan Plann, Ph.D. (*Spanish*)  
A. Carlos Quicoli, Ph.D. (*Portuguese and Romance Linguistics*)  
Richard M. Reeve, Ph.D. (*Spanish*)  
Enrique Rodríguez-Cepeda, Ph.D. (*Spanish*)  
A. John Skirius, Ph.D. (*Spanish*)  
Paul C. Smith, Ph.D. (*Spanish*)

#### Assistant Professor

Guillermo Hernández, Ph.D. (*Spanish*)

#### Lecturers

José M. Cruz-Salvadores, M.A. (*Spanish*)  
George L. Voyt, J.D. (*Spanish*)

### 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, the student is 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 the undergraduate student to pursue many possible interests and enables the graduate student to concentrate in depth on several areas of specialization.

The department's courses are primarily designed to serve the three B.A. programs: the B.A. in Spanish (Plan A), the B.A. in Spanish and Linguistics (Plan B), and the B.A. in Portuguese, as well as to prepare students for its three graduate programs: the M.A. in Spanish, the M.A. in Luso-Brazilian Language and Literatures, and the Ph.D. in Hispanic Languages and Literatures. The courses are also functionally supportive of such interdepartmental programs as the Teaching Credential in Spanish, the B.A. and M.A. programs in Latin American Studies, the M.A. program in Folklore and Mythology, and the 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 who have taken Spanish elsewhere and wish to enroll in UCLA Spanish classes for the first time must take the placement test given each quarter during the week before classes begin. Consult the *Schedule of Classes*.

### Preparation for the Majors

*Required:* Spanish 25 or equivalent as determined by the placement test; courses M35, M42, and M44, or equivalent.

### The Major, Plan A (Spanish Language and Literature)

*Required:* Fifteen upper division courses, including Spanish 100A, 100B, 105A, 105B, 119A, 119B, 120A, 120B, 136A, 136B, and five elective courses in the department (one in Spanish literature, one in Spanish American literature, and three others not including courses 160A, 160B, 160C).

### The Major, Plan B (Spanish and Linguistics)

*Required:* Completion of six quarters of study in one other foreign language or three quarters in each of two other foreign languages, in addition to the "Preparation for the Major." Portuguese is recommended.

The major consists of 15 upper division courses, including Spanish 100A, 100B, 105A, 105B, 115, 118A, 118B, Linguistics 100, 103, 110, 120A, 120B, and three electives in Spanish, at least one of which must be in literature.

### 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, M42, M44, or equivalent.

### The Major

*Required:* Thirteen upper division courses, including Portuguese 100, 103, 118, 120A, 120B, 121A, 121B. The remaining six courses may consist of six electives in Portuguese, or four electives in Portuguese plus two courses supportive of your program and approved by the department in history, philosophy, linguistics, or another language or literature.

## Spanish and Portuguese

5303 Rolfe Hall, 825-1036

#### Professors

Shirley L. Arora, Ph.D. (*Spanish*), *Chair*  
José R. Barcia, Lic. F. y L. (*Spanish*)  
Rubén A. Benítez, Ph.D. (*Spanish*)  
Joaquín Gimeno, Ph.D. (*Spanish*)  
Claude L. Hulet, Ph.D. (*Spanish and Portuguese*)  
Carroll B. Johnson, Ph.D. (*Spanish*)  
Gerardo Luzuriaga, Ph.D. (*Spanish*)  
C. B. Morris, Litt.D. (*Spanish*)  
C. P. Otero, Ph.D. (*Spanish and Romance Linguistics*)

## Master of Arts in Spanish

### Admission

The UCLA Bachelor of Arts in Spanish or the equivalent is required. Students admitted from elsewhere whose preparation is considered deficient are required to take a specified number of relevant upper division courses which may be taken concurrently with graduate courses but may not be applied toward the M.A. Three letters of recommendation are also required, preferably from professors with whom you have studied in the major field, who can comment on your potential as a graduate student. In addition, the Graduate Record Examination Aptitude Test is required. A combined score of 1000 is preferred, although more weight is given to the verbal than to the quantitative aspect.

### Foreign Language Requirement

One language besides Spanish is required. Any language which has a written literature is acceptable. Passing the Educational Testing Service (ETS) test fulfills the requirement. In languages where no such test is available, you must pass a departmental examination. You may also complete five quarters of college-level courses in the language with a grade of B or better. If you take Portuguese, one year of study (Portuguese 3) at UCLA is sufficient. The language requirement must be satisfied no later than the quarter in which the final course requirement is completed.

### Course Requirements

Required for the comprehensive examination plan are ten courses with a minimum of seven in the 200 series, of which one must be a seminar (Spanish 250 through 299) which may be taken only after the relevant graduate pre-seminar (courses M200 through M249). For example, course 224 is prerequisite to course 264A. Three upper division courses in the department may be included in the total of ten courses. With the consent of the graduate adviser, a maximum of two courses may be taken at the graduate level in closely related fields outside the department. Course 596 may be included once. Courses 597 and 598 may not be applied toward the degree.

### Comprehensive Examination Plan

The department strongly favors this plan and will approve the thesis plan only in exceptional circumstances. The examination, which must be taken no later than two quarters after course requirements are completed, is administered by a standing committee of six members of the department, appointed by the Chair. Each of the three fields of study is represented by two professors. You elect one of the three fields as your major, and the other two become the minors. A reading list for each specialty constitutes the basis of the examination. Given

in the Fall and Spring Quarters, the examination is entirely written and is of six hours duration. It is graded high pass, mid pass, low pass, or not passed. A grade of low pass results in a terminal M.A. In case of failure, you may retake the failed portions once, when the examination is next regularly offered. Passing the M.A. examination after repeating one or more failed portions results in a terminal M.A.

### Thesis Plan

The department strongly favors the comprehensive examination plan and will approve M.A. theses only for exceptionally well-qualified students in exceptional circumstances. For details on this plan, contact the department.

## Master of Arts in Luso-Brazilian Language and Literatures

### Admission

The UCLA Bachelor of Arts in Portuguese or the equivalent is required. Other admission requirements are the same as those for the M.A. in Spanish.

### Major Fields

Portuguese literature; Brazilian literature; Portuguese linguistics. At the M.A. level, you are expected to work in all three fields.

### Foreign Language Requirement

One language besides Portuguese is required. Any language which has a written literature is acceptable. Passing the Educational Testing Service (ETS) test fulfills the requirement. In languages where no such test is available, you must pass a departmental examination. You may also complete five quarters of college-level courses in the language with a grade of B or better. The language requirement must be satisfied no later than the quarter in which the final course requirement is completed.

### Course Requirements

Nine courses are required, of which a minimum of six must be in the 200 series. Three upper division courses in the department may be included in the total of nine courses. With the adviser's approval, two graduate courses outside the department in closely related fields may also be included. Course 596 may be included twice. Courses 597 and 598 may not be applied toward the degree.

### Comprehensive Examination Plan

The department strongly favors this plan and will approve the thesis plan only in exceptional cases. The examination, administered by a committee for Luso-Brazilian language and literatures, is divided into three major parts: (1) a three-hour written examination in Portuguese literature; (2) a three-hour written examination

in Brazilian literature; and (3) a one-hour written examination in the history and structure of the Portuguese language. The examination, given in the Fall, Winter, and Spring Quarters, is graded high pass, mid pass, low pass, or not passed. A grade of low pass results in a terminal M.A. In case of failure, you may retake the failed portions once, when the examination is next regularly offered. Passing the M.A. examination after repeating one or more failed portions results in a terminal M.A.

### Thesis Plan

The department strongly favors the comprehensive examination plan and will approve M.A. theses only for exceptionally well-qualified students in exceptional circumstances. For details on this plan, contact the department.

## Ph.D. in Hispanic Languages and Literatures

### Admission

The UCLA Master of Arts in Spanish or Luso-Brazilian Language and Literatures, or the equivalent, is required. Three letters of recommendation are also required from professors familiar with your work as a graduate student, to be addressed to your capacity for research-oriented doctoral studies and possible entry into the profession. The Graduate Record Examination Aptitude Test is also required. A combined score of 1000 is preferred; the verbal score is considered more important than the quantitative.

Students who hold the M.A. in Spanish or Luso-Brazilian Language and Literatures from UCLA fall into 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; (3) *high pass* — automatically eligible to enter the Ph.D. program.

### Major Fields

The department recognizes the following fields of specialization, from which you select one major and four minors: (1) Spanish linguistics and philology; (2) medieval and Renaissance Spanish literature; (3) Golden Age Spanish literature; (4) 18th- and 19th-century Spanish literature; (5) 20th-century Spanish literature; (6) colonial and 19th-century Spanish American literature; (7) 20th-century Spanish American literature; (8) Portuguese linguistics and philology; (9) Portuguese literature; (10) Brazilian literature; (11) Spanish and Luso-Brazilian folklore.

### Foreign Language Requirement

Reading knowledge of two foreign languages in addition to both Spanish and Portuguese is required. The languages are selected in consultation with your guidance committee with a

view to their usefulness in your proposed research. Passing the Educational Testing Service (ETS) test fulfills the requirement. In languages where no such test is available, you must pass a departmental examination. You may also complete at least five quarters of college-level courses in the language with a grade of B or better. Finally, the department will accept evidence of fulfillment of a language requirement in connection with an M.A. obtained elsewhere. The language requirement must be satisfied no later than the quarter before the qualifying examinations are taken.

### Course Requirements

After the B.A., 18 graduate courses in the department are required as follows: (1) general requirements: Spanish M200, M201, M203A; (2) courses in the major — the number to be determined by the guidance committee; (3) courses in the four minor fields — the minimum requirement for a minor is one graduate pre-seminar (courses M200 through M249), followed by the appropriate seminar (courses 250 through 299); the requirements in any minor field may be increased at the discretion of the guidance committee in consideration of your preparation; (4) one additional graduate course in a field not covered in items 1, 2, and 3; (5) three upper division courses in Portuguese and/or Brazilian literatures.

### Qualifying Examinations

The qualifying examinations, given during the Fall, Winter, and Spring Quarters, consist of (1) a three-hour written examination in the major field; (2) four one-hour written examinations, one in each minor field; (3) a two-hour University Oral Qualifying Examination on the five fields and at which your prospectus for the dissertation is discussed and approved. Five weeks is normally the maximum time allowed to complete the series of examinations. Failed portions may be retaken once after any remedial preparation the committee may specify. When you pass the entire series of examinations, you are eligible to apply for formal advancement to candidacy for the Ph.D. and may proceed to write the dissertation.

### Final Oral Examination

The final oral examination is optional at the committee's discretion.

### Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Spanish

### Lower Division Courses

Spanish 1 through 4 use J.R. Barcia's *Lengua y Cultura*. 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 will be allowed for completing a less advanced course after successful completion of a more advanced course in grammar and/or composition.

**1. Elementary Spanish.** Discussion, five hours; laboratory, one hour. The course is equivalent to the first year of high school Spanish. Not open for credit to students who have completed two years of high school Spanish or equivalent with grades of C or better. Students are, however, credited with four units toward the minimum progress requirement.

**1G. Reading Course for Graduate Students (No credit).** Discussion, five hours.

**2. Elementary Spanish.** Discussion, five hours; laboratory, one hour. Prerequisite: course 1 or equivalent as determined by the placement test. Not open for credit to students who have completed two years of high school Spanish or equivalent. Students are, however, credited with four units toward the minimum progress requirement.

**2G. Reading Course for Graduate Students (No credit).** Discussion, five hours. Prerequisite: course 1G or equivalent.

**3. Elementary Spanish.** Discussion, five hours; laboratory, one hour. Prerequisite: course 2 or equivalent as determined by the placement test. The main grammatical topics include relative clauses; direct vs. indirect speech; imperatives; impersonal constructions; subjunctive; present, imperfect; idioms. Vocabulary of about 400 items and idioms dealing with everyday experience and some selected readings of good authors.

**4. Intermediate Spanish.** Discussion, five hours; laboratory, one hour. Prerequisite: course 3 or equivalent as determined by the placement test. Grammar review. Also, conditional; imperative and conditional; indicative vs. subjunctive; past perfect of subjunctive; infinitive. Vocabulary of about 400 items and idioms dealing with everyday experience and some literary pieces.

**5. Intermediate Spanish.** Discussion, five hours; laboratory, one hour. Prerequisite: course 4 or equivalent as determined by the placement test.

**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. (F,W,Sp)

**9A-9B. Advanced Conversation (2 units each).** Discussion, three hours. Prerequisite: course 8B or equivalent. (F,W,Sp)

**25. Advanced Spanish.** Prerequisite: course 5 or equivalent. Concentration on the building of vocabulary and the attainment of a high degree of comprehension in preparation for the courses in literature.

**26. Composition for Spanish Speakers.** Lecture, three hours. Prerequisites: course 5 or equivalent and consent of instructor. Practice in the reading and writing of Spanish for students with oral proficiency in Spanish (in lieu of Spanish 25).

**M35. Spanish, Portuguese, and the Nature of Language.** (Same as Portuguese M35.) Lecture, three hours. An introduction to language study within the context of Romance languages, focusing on Spanish and Portuguese. The nature of language: its structure, its diversity, its evolution, its social and cultural settings, its literary uses. The 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. Highlights of the civilization of Spain and Portugal, with emphasis on their artistic, economic, social, and historical development as background for upper division courses. Conducted in English. Mr. Cruz-Salvadores

**M44. Civilization of Spanish America and Brazil.** (Same as Portuguese M44.) Required of majors. Highlights of the civilization of Spanish America and Brazil, with emphasis on their artistic, economic, social, and historical development as background for upper division courses. Conducted in English. Mr. Reeve, Mr. Skirius

## Upper Division Courses

Prerequisite to all upper division courses except Spanish 160A-160B-160C is Spanish 25 or equivalent as determined by the placement test.

**100A. Introduction to the Study of Spanish Grammar: Phonology and Morphology.** (Formerly numbered 100.) Lecture, three hours. Prerequisite: course M35. Analysis of the phonemic and morphological systems of Spanish. Ms. Plann, Mr. Robe

**100B. Introduction to the Study of Spanish Grammar: Syntax.** (Formerly numbered 103.) Lecture, three hours. Prerequisite: course M35. A study of the syntactical systems of Spanish. Mr. Otero, Ms. Plann

**105A. Intermediate Composition.** (Formerly numbered 105.) Lecture, three hours. Practice in writing Spanish with appropriate vocabulary, syntactical structures, and stylistic patterns.

**105B. Advanced Composition.** (Formerly numbered 109.) Lecture, three hours. Practice in writing Spanish with appropriate vocabulary, syntactical structures, and stylistic patterns.

**107. The Spanish of Southern California.** (Formerly numbered 117.) Lecture, three hours. Prerequisites: courses M35, 100A, and 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. Mr. Robe

**115. Applied Linguistics.** Lecture, three hours. Prerequisites: courses M35, 100B. Survey of the major linguistic problems faced by the teacher of Spanish. Ms. Plann, Mr. Robe

**118A. The History of Portuguese and Spanish: Phonology.** (Formerly numbered M118.) Lecture, three hours. Prerequisites: courses M35, 100A. Major features of the development of the Portuguese and Spanish languages from their origins in Vulgar Latin to modern times. Ms. Plann, Mr. Quicoli, Mr. Smith

**118B. The History of Portuguese and Spanish: Morphology and Syntax.** Lecture, three hours. Prerequisites: courses M35, 100B. Major features of the development of the Portuguese and Spanish languages from their origins in Vulgar Latin to modern times. Mr. Otero, Ms. Plann, Mr. Quicoli

**119A. Introduction to the Study of Literature: Prose.** (Formerly numbered 119.) Lecture, three hours. An introduction to the study of literary devices, figures of speech, and distinctive stylistic features in the prose literature of Spain and Spanish America, particularly in the novel and essay.

**119B. Introduction to the Study of Literature: Poetry and Drama.** (Formerly numbered 119.) Lecture, three hours. An introduction to the study of literary devices, figures of speech, versification, and distinctive stylistic features in the poetry and drama of Spain and Spanish America.

**120A-120B. Survey of Spanish Literature.** Lecture, three hours. An introduction to the principle periods, currents, and authors of Spanish literature. Mr. Gimeno, Mr. Johnson, Mr. Rodríguez-Cepeda

**122. Medieval Literature: Prose.** Lecture, three hours. Recommended prerequisite: course 120A. A study of the main genres through representative works. Mr. Gimeno

**123. Medieval Literature: Poetry.** (Formerly numbered 122.) Lecture, three hours. Recommended prerequisite: course 120A. A study of the main genres through representative works. Mr. Gimeno

**124. The Golden Age: Poetry and Drama.** Lecture, three hours. Recommended prerequisite: course 120A. A study, through representative works, of the Golden Age poetry and drama.

Mr. Johnson, Mr. Rodríguez-Cepeda

**127. The Golden Age: *Don Quijote*.** Lecture, three hours. Recommended prerequisite: course 120A. The development of the novel in the Golden Age, with particular reference to *Don Quijote*.

Mr. Johnson, Mr. Rodríguez-Cepeda

**128. The Enlightenment and Romanticism in Spain.** Lecture, three hours. Recommended prerequisite: course 120B. A study, through representative works, of the main manifestations of thought and literature from 1700 to 1850.

Mr. Benítez, Mr. Rodríguez-Cepeda

**130. Post-Romanticism, Realism, and Naturalism in Spain.** Lecture, three hours. Recommended prerequisite: course 120B. The development of the main trends of Spanish literature from 1850 to 1898.

Mr. Benítez, Mr. Smith

**132. 20th-Century Spanish Prose.** (Formerly numbered 132B.) Lecture, three hours. Recommended prerequisite: course 120B. A study of several representative works of Spanish prose literature since 1898.

Mr. Morris

**133. 20th-Century Spanish Poetry and Drama.** (Formerly numbered 132A.) Lecture, three hours. Recommended prerequisite: course 120B. A study of several representative works of Spanish poetry and drama since 1898.

Mr. Morris

**136A-136B. Survey of Spanish American Literature.** (Formerly numbered 121A-121B.) Lecture, three hours. An introduction to the principal periods, currents, and authors of Spanish American literature.

Ms. Arora, Mr. Luzuriaga, Mr. Oviedo, Mr. Reeve, Mr. Skirius

**137. The Literature of Colonial Spanish America.** Lecture, three hours. Recommended prerequisite: course 136A. A study of the most important genres and authors from the Conquest to 1810.

Ms. Arora, Mr. Oviedo

**139. Romanticism and Realism in Spanish American Literature.** Lecture, three hours. Recommended prerequisite: course 136A. A study, through representative literary works, of the most important currents of thought and literary trends from 1810 to 1880.

Mr. Luzuriaga, Mr. Oviedo, Mr. Reeve, Mr. Skirius

**142. 20th-Century Spanish American Literature: Fiction and the Essay.** (Formerly numbered 142B.) Lecture, three hours. Recommended prerequisite: course 136B. A study, through representative novels, short stories, and essays, of Spanish American prose literature since 1910.

Mr. Luzuriaga, Mr. Reeve, Mr. Skirius

**143. 20th-Century Spanish American Literature: Poetry and Drama.** (Formerly numbered 142A.) Lecture, three hours. Recommended prerequisite: course 136B. A study of the principal poets, dramatists, and dramatic movements in Spanish American literature since 1910.

Mr. Reeve, Mr. Skirius

**144. Mexican Literature.** (Formerly numbered 141.) Lecture, three hours. Recommended prerequisite: course 136B. A study of the major movements and authors of Mexican literature.

Mr. Reeve, Mr. Skirius

**M145. Introduction to Chicano Literature.** (Same as Chicano Studies M145.) Lecture, three hours. Prerequisite: course 25 or 26. Recommended: course 136B. Introduction to texts representative of the Chicano literary heritage. The course seeks to provide a 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 of the required reading is in Spanish. Bilingual and English works are included and discussed. A number of important scholarly and critical statements pertaining to the characteristics and development of the Chicano literary corpus are read and analyzed.

Mr. Hernández

**M149. Folk Literature of the Hispanic World.** (Same as Folklore M149.) Lecture, three hours. A study of the history and present dissemination of the principal forms of folk literature throughout the Hispanic countries.

Ms. Arora, Mr. Robe

**160A-160B-160C. Hispanic Literatures in Translation.** Lecture, three hours. Class readings and analysis of selected works in translation. Classroom discussion, papers, and examinations are in English:

**160A.** Spain and Portugal.

**160B.** Spanish America and Brazil.

**160C.** *Don Quijote* in English Translation. Class reading and analysis of Cervantes' *Don Quijote*.

Mr. Johnson

**170A. Senior Honors Seminar: Topics in Spanish Literature.** Lecture, three hours. Prerequisite: senior Spanish major with a 3.5 GPA in the major. Directed research on topics within the general area of Spanish literature. Two senior seminars are required for departmental honors. (F)

**170B. Senior Honors Seminar: Topics in Spanish American Literature.** Lecture, three hours. Prerequisite: senior Spanish major with a 3.5 GPA in the major. Directed research on topics within the general area of Spanish American literature. Two senior seminars are required for departmental honors. (W)

**170C. Senior Honors Seminar: Topics in Hispanic Linguistics.** Lecture, three hours. Prerequisite: senior Spanish major with a 3.5 GPA in the major. Directed research on topics within the general area of Hispanic linguistics. Two senior seminars are required for departmental honors. (Sp)

**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. Bibliography.** (Same as Portuguese M200.) Discussion, three hours. Identification and analysis of bibliographical sources for work by doctoral candidates in their fields of specialization.

Mr. Benítez, Mr. Rodríguez-Cepeda

**M201. Literary Criticism.** (Same as Portuguese M201.) Discussion, three hours. Definition and discussion of methods of literary criticism.

Mr. Benítez, Mr. Otero

**M203A-M203B. The Development of the Portuguese and Spanish Languages.** (Same as Portuguese M203A-M203B.) Prerequisites: courses 100A, 118A, 118B, or consent of instructor. Intensive study of the historical development of the Portuguese and Spanish languages from their origin in spoken Latin.

Mr. Otero, Mr. Smith

**204A-204B. Transformational Grammar.** Discussion, three hours. Prerequisite: consent of instructor. Course 204A or consent of instructor is prerequisite to 204B. A transformational approach to the Spanish language, with some consideration of the bearing of syntax, semiology, and phonology on style, metaphor, and meter.

Mr. Otero

**206. Linguistics.** Discussion, three hours. Prerequisite: course 115 or equivalent. A study of the theoretical synchronic linguistics as applied to Spanish.

Mr. Otero, Ms. Plann

**209. Dialectology.** Discussion, three hours. Prerequisite: course 100A or 115 or equivalent. The major dialect areas of peninsular and American Spanish, with the distinguishing features of each. Influence and contribution of cultural and historical features, including indigenous languages, to their formation.

Mr. Robe

**222. Medieval and Renaissance Poetry.** Seminar, three hours. Readings and lectures on Spanish poetry from the beginning to 1550.

Mr. Gimeno

**223. Medieval and Renaissance Prose.** Seminar, three hours. Readings and lectures on Spanish prose from the beginning to 1550.

Mr. Gimeno

**224. The Poetry of the Golden Age.** Seminar, three hours. Readings and lectures on the main poets and poetic movements of the Golden Age.

Mr. Morris, Mr. Rodríguez-Cepeda

**225. The Drama of the Golden Age.** Seminar, three hours. Readings and lectures on the "comedia."

Mr. Rodríguez-Cepeda

**226. Prose of the Golden Age.** Seminar, three hours. Readings and lectures on fictional, didactic, religious, and historical writings.

Mr. Johnson

**227. Cervantes.** Seminar, three hours. Readings and lectures on the works of Cervantes.

Mr. Johnson

**230. Neoclassicism and Romanticism.** Seminar, three hours. Readings and lectures on representative works of the period.

Mr. Benítez

**231. The 19th-Century Novel.** Seminar, three hours. Readings and lectures on the novel of the 19th century.

Mr. Benítez, Mr. Smith

**232. The Generation of 1898.** Seminar, three hours. Readings and lectures on representative works of the generation.

Mr. Barcia, Mr. Morris

**233. Contemporary Spanish Drama.** Seminar, three hours. Readings and lectures on the theater since 1898.

Mr. Barcia, Mr. Morris

**234. Contemporary Spanish Poetry.** Seminar, three hours. Readings and lectures on poetry since 1898.

Mr. Barcia, Mr. Morris

**235. Contemporary Spanish Prose.** Seminar, three hours. Readings and lectures on the novel, the short story, and the essay since 1898.

Mr. Barcia, Mr. Morris

**237. Chroniclers of the Americas.** Seminar, three hours. Readings and lectures on the "Cronistas de Indias."

Ms. Arora, Mr. Robe

**239. Neoclassic and Romantic Prose and Poetry in Spanish America.** Seminar, three hours. Intensive study of neoclassicism and Romanticism in Spanish America.

Mr. Oviedo, Mr. Skirius

**240. The Modernist Movement.** Seminar, three hours. An intensive study of the important writers of this movement during the period from 1880 to 1916.

Mr. Luzuriaga

**243. Contemporary Spanish American Poetry.** Seminar, three hours. Intensive study of the important poets of Spanish America since 1916.

Mr. Oviedo

**244. Contemporary Spanish American Novel and Short Story.** Seminar, three hours. A study of the important novelists and short story writers from modernism to the present.

Mr. Oviedo, Mr. Reeve

**245. Contemporary Spanish American Essay.** Seminar, three hours. Intensive study of the important essayists of the 20th century.

Mr. Skirius

**246. Contemporary Spanish American Theater.** Seminar, three hours. A study of the principal dramatists and theater movements in the 20th century.

Mr. Luzuriaga

**247. Chicano Literature.** Lecture, three hours. Prerequisites: graduate standing, consent of instructor. A study of the major movements and authors of Mexican-American literature.

Mr. Hernández

**M249. Hispanic Folk Literature.** (Same as Folklore M249 and Portuguese M249.) Seminar, three hours. Prerequisite: graduate standing. An intensive study of folk literature as represented in (1) ballad and poetry, (2) narrative and drama, (3) speech.

Ms. Arora, Mr. Robe

**M251. Studies in Galegan-Portuguese and Old Spanish.** (Same as Portuguese M251.) Seminar, two hours. Prerequisites: courses M203A-M203B. Problems related to the historical development of Galegan-Portuguese and Old Spanish.

Mr. Otero, Mr. Smith

**256A-256B. Studies in Linguistics and Dialectology.** Seminar, two hours. Problems in the analysis and description of the contemporary language. Directed toward independent research:

**256A.** Studies in Linguistics. Prerequisite: course 206. Mr. Otero

**256B.** Studies in Dialectology. Prerequisite: course 209. Mr. Robe

**262A-262B-262C. Studies in Medieval and Renaissance Literature.** Seminar, two hours:

**262A.** Lyric Poetry. Prerequisite: course 222. Mr. Gimeno

**262B.** Epic Poetry. Prerequisite: course 222. Mr. Gimeno

**262C.** Prose Writers. Prerequisite: course 223. Mr. Gimeno

**264A-264D. Studies in the Golden Age.** Seminar, two hours:

**264A.** Poetry. Prerequisite: course 224. Mr. Johnson, Mr. Morris, Mr. Rodríguez-Cepeda

**264B.** The "Comedia." Prerequisite: course 225. Mr. Johnson, Mr. Rodríguez-Cepeda

**264C.** Studies in Prose of the Golden Age. Prerequisite: course 226.

Mr. Johnson, Mr. Rodríguez-Cepeda

**264D.** *Don Quijote*. Prerequisite: course 227. Mr. Johnson, Mr. Rodríguez-Cepeda

**270A-270B. Studies in 18th- and 19th-Century Spanish Literature.** Seminar, two hours:

**270A.** Poetry, Drama, and Prose. Prerequisite: course 230. Mr. Benítez

**270B.** The Novel. Prerequisite: course 231. Mr. Benítez, Mr. Smith

**272A-272D. Studies in 20th-Century Spanish Literature.** Seminar, two hours:

**272A.** The Novel. Prerequisite: course 232 or 235. Mr. Barcia, Mr. Morris

**272B.** The Theater. Prerequisite: course 233. Mr. Barcia, Mr. Morris

**272C.** Poetry. Prerequisite: course 234. Mr. Barcia, Mr. Morris

**272D.** The Essay. Prerequisite: course 235. Mr. Barcia, Mr. Morris

**277. Studies in Colonial Spanish American Literature.** Seminar, two hours. Prerequisite: course 237. Ms. Arora

**278. Studies in 19th-Century Spanish American Literature.** Seminar, two hours. Prerequisite: course 239. Mr. Oviedo

**280A-280D. Studies in Contemporary Spanish American Literature.** Seminar, two hours:

**280A.** Modernist Poetry. Prerequisite: course 240. Mr. Luzuriaga

**280B.** Postmodernist Poetry. Prerequisite: course 243. Mr. Oviedo

**280C.** Novel and Short Story. Prerequisite: course 244. Mr. Reeve

**280D.** The Essay. Prerequisite: course 245. Mr. Skirius

**M286A-M286B-M286C. Studies in Hispanic Folk Literature.** (Same as Folklore M286A-M286B-M286C.) Seminar, two hours:

**M286A.** The Romancero. Prerequisite: course 222.

**M286B.** Narrative and Drama. Prerequisite: course M249. Ms. Arora, Mr. Robe

**M286C.** Ballad, Poetry, and Speech. Prerequisite: course M249. Ms. Arora, Mr. Robe

**310. The Teaching of Spanish in the Elementary School.** Lecture, three hours. Prerequisite: course 115.

**370. The Teaching of Spanish in the Secondary School.** Lecture, three hours. Prerequisite: course 115.

**372. The Language Laboratory (2 units).** Lecture, three hours. Preparation of materials. Equipment, techniques, and problems related to the operation of the language laboratory.

Mr. Otero

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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. Mr. Quicoli

**495. The Teaching of Spanish in the University.** Prerequisite: graduate standing in the department. Basic concepts of modern theories of language and language acquisition which underlie modern methods of second-language teaching. Methods of second-language teaching: pattern drill, "inductive grammar" (de Saúze, Pucciani and Hamel, Barcia), and others. Teaching practice. Observation and discussion of selected classes. Lesson preparation and execution. Test construction. Mr. Quicoli

**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 the M.A. course requirements.

**597. Preparation for Graduate Examinations (4 to 8 units).** Prerequisites: official acceptance of candidacy by the department and 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 the quarter that comprehensive or qualifying examinations are to be taken. S/U grading.

**598. Research for M.A. Thesis (4 to 8 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 the Ph.D. qualifying examinations. Research for and preparation of Ph.D. dissertation. S/U grading.



## Portuguese

### Lower Division Courses

No credit will be 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. Prerequisite: course 1 or equivalent.

**3. Intermediate Portuguese.** Discussion, five hours; laboratory, one hour. Prerequisite: course 2 or equivalent.

**8A-8B. Portuguese Conversation (2 units each).** Discussion, three hours. Prerequisite: course 3 with a grade of B or better.

**25. Advanced Portuguese.** Prerequisite: course 3 or equivalent.

**M35. Spanish, Portuguese, and the Nature of Language.** (Same as Spanish M35.) Lecture, three hours. An introduction to language study within the context of Romance languages, focusing on Spanish and Portuguese. The nature of language: its structure, its diversity, its evolution, its social and cultural settings, its literary uses. The study of language and its relation to other areas of human knowledge.

**M42. Civilization of Spain and Portugal.** (Same as Spanish M42.) Required of majors. Highlights of the civilization of Spain and Portugal, with emphasis on their artistic, economic, social, and historical development as background for upper division courses. Conducted in English. Mr. Cruz-Salvadores

**M44. Civilization of Spanish America and Brazil.** (Same as Spanish M44.) Required of majors. Highlights of the civilization of Spanish America and Brazil, with emphasis on their artistic, economic, social, and historical development as background for upper division courses. Conducted in English.

Mr. Reeve, Mr. Skirius

### Upper Division Courses

**100. Phonology and Pronunciation.** Lecture, three hours. Analysis of the phonetic and phonemic systems of Portuguese, with special emphasis on the correlation between the phonemic and graphemic systems. Exercises and drills directed toward individual needs. Mr. Quicoli

**101A. Advanced Reading and Conversation.** Lecture, three hours. Reading and discussion of writings by modern Brazilian and Portuguese authors.

**101B. Advanced Composition and Style.** Lecture, three hours. Correction of student's compositions and analysis of basic stylistic elements.

**102A-102B. Intensive Portuguese.** Prerequisite: advanced foreign language experience (other than Portuguese) or consent of instructor. An intensive course stressing both speaking and reading skills designed to cover the equivalent of three quarters of the traditional pattern and to meet the peculiar needs of advanced (upper division and graduate) students.

**103. Syntax.** Lecture, three hours. A review of the patterns of the Portuguese language: the verb system, syntax of preposition, word pattern, and word distribution. Mr. Quicoli

**118. History of the Portuguese and Spanish Languages.** (Formerly numbered M118.) Lecture, three hours. Prerequisite: course 100. Major features of the development of the Portuguese and Spanish languages from their origins in Vulgar Latin to modern times. Contributions of other languages to the formation of Portuguese and Spanish.

Mr. Otero, Mr. Quicoli, Mr. Smith

**120A. Survey of Portuguese Literature.** Lecture, three hours. First half of an introduction to the principal movements, authors, and works of Portuguese literature. Mr. Dias

**120B. Survey of Portuguese Literature.** Lecture, three hours. Second half of an introduction to the principal movements, authors, and works of Portuguese literature. Mr. Dias

**121A. Survey of Brazilian Literature.** Lecture, three hours. First half of an introduction to the principal movements, authors, and works of Brazilian literature. Mr. Hulet

**121B. Survey of Brazilian Literature.** Lecture, three hours. Second half of an introduction to the principal movements, authors, and works of Brazilian literature. Mr. Hulet

**C124. Medieval Portuguese Literature.** Lecture, three hours. The main genres of medieval Portuguese and Galician literature, with emphasis on at least one representative work for each. May be concurrently scheduled with course C242A. Mr. Dias

**C126. Renaissance and Baroque Portuguese Literature.** Lecture, three hours. The main genres of Renaissance and baroque literature, with emphasis on at least one representative work for each. May be concurrently scheduled with course C242B. Mr. Dias

**C127. Colonial Brazilian Literature.** Lecture, three hours. A study of the most important authors and literary currents to 1830. May be concurrently scheduled with course C243A. Mr. Hulet

**C128. 18th- and 19th-Century Portuguese Literature.** Lecture, three hours. The main manifestations of thought and literature from 1700 to 1900, with emphasis on representative works. May be concurrently scheduled with course C242C. Mr. Dias

**C129. Romanticism in Brazil.** Lecture, three hours. A study of representative trends and authors. May be concurrently scheduled with course C243B. Mr. Hulet

**C135. Naturalism, Realism, and Parnassianism in Brazil.** Lecture, three hours. A study of representative trends and authors. May be concurrently scheduled with course C243C. Mr. Hulet

**C136. Contemporary Portuguese Literature.** Lecture, three hours. A study of representative trends and authors. May be concurrently scheduled with course C242D. Mr. Dias

**C137. Contemporary Brazilian Literature.** Lecture, three hours. A study of representative trends and authors. May be concurrently scheduled with course C243D. Mr. Hulet

**140A-140B. Luso-Brazilian Literature in Translation.** Lecture, three hours:

**140A.** Portuguese Literature. Class reading and analysis of selected works in translation. Classroom discussion, papers, and examinations are in English. Mr. Dias

**140B.** Brazilian Literature. Class reading and analysis of selected works in translation. Classroom discussion, papers, and examinations are in English. Mr. Hulet

**141B. Brazilian Film and Literature.** Lecture, three and one-half hours. Students with credit for course 197 will not receive credit for this course. A topical analysis (conducted in English) of the main literary and historical themes of Brazilian culture, through films and literary texts, from colonial beginnings to the present day.

**197. Brazilian Film and Literature.** Lecture, three and one-half hours. Prerequisite: course 25 or consent of instructor. Students with credit for course 141B will not receive credit for this course. A topical analysis (conducted in Portuguese) of the main literary and historical themes of Brazilian culture, through films and literary texts, from colonial beginnings to the present day.

**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. Bibliography.** (Same as Spanish M200.) Discussion, three hours. Identification and analysis of bibliographical sources for work by doctoral candidates in their fields of specialization.

Mr. Benitez, Mr. Rodriguez-Cepeda

**M201. Literary Criticism.** (Same as Spanish M201.) Discussion, three hours. Definition and discussion of methods of literary criticism.

Mr. Benitez, Mr. Otero

**M203A-M203B. The Development of the Portuguese and Spanish Languages.** (Same as Spanish M203A-M203B.) Prerequisites: courses 100, 118, or consent of instructor. Intensive study of the historical development of the Portuguese and Spanish languages from their origin in spoken Latin.

Mr. Otero, Mr. Smith

**204A-204B. Transformational Grammar.** Prerequisite: consent of instructor. Course 204A or consent of instructor is prerequisite to 204B. A transformational approach to the Portuguese language, focused especially on the syntactic component and its relations with other aspects of grammar. Mr. Quicoli

**206. Portuguese Linguistics.** Lecture, three hours. Prerequisite: consent of instructor. A study of theoretical synchronic linguistics of Portuguese.

Mr. Quicoli

**C242A-C242D. Special Topics in Portuguese Literature.** Lecture, two hours. Prerequisite: consent of instructor:

**C242A.** Medieval Portuguese Literature. May be concurrently scheduled with course C124. Mr. Dias

**C242B.** Renaissance and Baroque Literature. May be concurrently scheduled with course C126. Mr. Dias

**C242C.** 18th- and 19th-Century Literature. May be concurrently scheduled with course C128. Mr. Dias

**C242D.** Contemporary Portuguese Literature. May be concurrently scheduled with course C136. Mr. Dias

**C243A-C243D. Special Topics in Brazilian Literature.** Lecture, two hours. Prerequisite: consent of instructor:

**C243A.** Colonial Literature. May be concurrently scheduled with course C127. Mr. Hulet

**C243B.** Romanticism in Brazil. May be concurrently scheduled with course C129. Mr. Hulet

**C243C.** Naturalism, Realism, and Parnassianism. May be concurrently scheduled with course C135. Mr. Hulet

**C243D.** Contemporary Brazilian Literature. May be concurrently scheduled with course C137. Mr. Hulet

**M249. Hispanic Folk Literature.** (Same as Folklore M249 and Spanish M249.) Seminar, three hours. Prerequisite: graduate standing. An intensive study of folk literature as represented in (1) ballad and poetry, (2) narrative and drama, (3) speech.

Ms. Arora, Mr. Robe

**M251. Studies in Galegan-Portuguese and Old Spanish.** (Same as Spanish M251.) Seminar, two hours. Prerequisites: courses M203A-M203B. Problems related to the historical development of Galegan-Portuguese and Old Spanish.

Mr. Otero, Mr. Smith

**252A-252B-252C. Special Studies in Portuguese Literature.** Seminar, two hours. Prerequisite: consent of instructor:

**252A.** Prose Fiction. Mr. Dias

**252B.** Poetry. Mr. Dias

**252C.** Theater. Mr. Dias



**253A-253B-253C. Special Studies in Brazilian Literature.** Seminar, two hours. Prerequisite: consent of instructor:

**253A.** Prose Fiction. Mr. Hulet

**253B.** Poetry. Mr. Hulet

**253C.** Theater. Mr. Hulet

**370. The Teaching of Portuguese in the Secondary School.** For future teachers in this field.

Mr. Hulet

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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. Mr. Quioli

**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 the M.A. course requirements.

**597. Preparation for Graduate Examinations (4 to 8 units).** Prerequisites: official acceptance of candidacy by the department and 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 the quarter that comprehensive or qualifying examinations are to be taken. S/U grading.

**598. Research for M.A. Thesis (4 to 8 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 the Ph.D. qualifying examinations. Research for and preparation of Ph.D. dissertation. S/U grading.

## Speech

232 Royce Hall, 825-3303

### Professors

Waldo Woodson Phelps, Ph.D.  
Donald E. Hargis, Ph.D., *Emeritus*  
Charles W. Lomas, Ph.D., *Emeritus*

### Associate Professors

Paul Irwin Rosenthal, Ph.D. (*Communication Studies*)  
Ralph Richardson, Ph.D., *Emeritus*

### Lecturers

Dale V. Atkins, Ph.D.  
Dee A. Bridgewater  
Stephen A. Doyle  
Eugenie Dye, Ph.D.  
Marde S. Gregory  
Thomas E. Miller  
Sonya H. Packer

There is no major in speech; however, the following undergraduate courses are offered for interested students:

## Lower Division Courses

**1. Principles of Oral Communication.** Prerequisite: 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.** Prerequisite: course 1. A 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. The critical analysis of selected argumentative speeches. Mr. Miller

**144. Speech and Community Action.** Prerequisite: consent of instructor. An intensive laboratory-based, observation-oriented study of speech and communication practices of action groups, protest groups, and public officials involved with the metropolitan Los Angeles urban crises. Mr. Richardson

**170. Rhetoric of Winston Churchill.** An intensive study of the speeches of Winston Churchill during the wilderness years, the 1930s, and the wartime years. The background and the impact of these speeches also are examined. Mr. Phelps

**171. The Rhetoric of Franklin Roosevelt.** An intensive study of major speeches and fireside chats during Roosevelt's presidency. The background and the impact of these speeches also are examined. Mr. Phelps

**172. Rhetoric of Harry S. Truman.** An intensive study of the major speeches of President Harry S. Truman. The background and the impact of these speeches are examined in relation to the social and political context of the Truman years. Mr. Phelps

**175. The Speeches of Abraham Lincoln.** Students are introduced to the full span of Lincoln's speaking career. His methods of preparation, the influence of associates, his style, his delivery, and lastly, his effect on the nation are studied. Mr. Richardson

**190A-190B. Forensics (2 units each).** Prerequisite: consent of instructor. May be repeated once for credit. Mr. Miller

**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. Mr. Miller

**197. Proseminar in Rhetoric.** Prerequisite: senior standing or consent of instructor. A variable topic course involving intensive study of discourse associated with a single major issue or personality. Mr. Phelps

**199. Special Studies (2 to 4 units).** Prerequisites: senior standing and consent of instructor.

## Study of Religion

See Religion, Study of

## Teacher Education

The College of Letters and Science offers a program of courses through which you may earn a credential to teach in California elementary schools. For details, see "Diversified Liberal Arts" earlier in this chapter.

## Urban Studies or Organizational Studies (Interdepartmental)

4289 Bunche Hall, 825-4331

### Scope and Objectives

Cities and organizations are multifaceted and can usefully be explored from more than one disciplinary perspective. The Special Program in Urban Studies or Organizational Studies brings together students and faculty from the Departments of History, Political Science, Economics, Sociology, Psychology, and Geography who share an interest in the modern city or in modern organizations. The programs give students a solid grounding in the urban or organizational perspectives and methods of at least two departments. Each of the programs must be taken in conjunction with a major in the social sciences or may be considered as an individual major.

### Special Undergraduate Programs

You may elect to combine one of these programs 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 or 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 each specialization must be taken for a letter grade. The specializations must be taken in conjunction with a major in the division of social sciences.

## Preparation for the Programs

*Required:* At least five of the following courses appropriate to the courses to be taken in the specialization: Economics 1 and 2; Sociology 18 and 109 or equivalent; Political Science 40 (urban studies), 80 (organizational studies); Psychology 10; Sociology 1 or 101; Geography 4.

## Urban Studies Specialization

*Required:* (1) At least three courses outside the major department selected from Political Science 182A, Sociology 125, Economics 120, Geography 150, Anthropology 167, Psychology 168; (2) a minimum of three courses selected from the following suites outside the major department: Political Science 180, 182B, 188B; Economics 121, 130, 133; Sociology 124, 154, 155; Geography 145, 146, 150, 151, 152, 156; History 154A, 154B, 154C, 154D; Psychology 127, 135, 137A; (3) internship experience in an urban governmental or community service organization.

## Organizational Studies Specialization

*Required:* (1) At least three courses outside the major department selected from Political Science 190, Sociology 121, 141, Management 190; (2) a minimum of three courses selected from the following suites outside the major department: Political Science 142, 145, 146, 186; Economics 101A, 147A, 147B, 170, 171; Sociology 124, 140, 152, 154; Geography 146, 148, 149; Psychology 135, 137A, 148; (3) internship experience in a governmental or service organization.

For further information, contact Professor Robert Fried, Political Science, at the above address.

## Women's Studies (Interdepartmental)

240 Kinsey Hall, 206-8101

## Scope and Objectives

The Women's Studies Program, established in 1975, is an interdisciplinary academic program offering an undergraduate specialization. Students completing a bachelor's degree may petition to receive a women's studies specialization in addition to a major in their chosen discipline.

The program spans departments, disciplines, and ideologies. It integrates the study of women — their social contributions and cultural experiences — into traditional academic fields, drawing on new research and theories. Women's studies offers tools for personal growth,

new knowledge about women and men, and new perspectives for understanding the past and present and influencing the future.

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. The program sponsors research in women's studies and has established a Student Association for Women's Studies. A library of information related to women's issues 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 faculty seminar on women, culture, and theory.

## Special Undergraduate Program

### Admission

A women's studies committee composed of the director, faculty members, and a student representative sets program policies and curricula. To be admitted to the specialization, you must have a grade-point average of 2.0 or higher and must formally register with the program. You are encouraged to declare your specialization in women's studies as early as possible and to discuss your proposed course of study with the director or undergraduate adviser.

### Requirements for the Specialization

Students participating in this program are required to complete both a departmental major and the women's studies specialization. There are no lower division prerequisites. You must take two core courses (Women's Studies 100 and M197), plus six upper division courses from the "Supporting Courses" lists. At least two of the six courses must be taken in departments other than the major department, and two may be experimental courses offered by the Council on Educational Development (CED).

You are encouraged to draw on the University's diverse resources in creating your 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. You may petition to have diverse courses accepted, including courses outside the College of Letters and Science, independent studies, or field study courses.

All courses applied to the specialization must be taken for a letter grade, and you must have a GPA of 2.5 or higher in women's studies courses to receive credit for completing the program. Courses in which you receive a grade below C may not be applied toward the specialization.

## Upper Division Core Courses

**100. Introduction to Women's Studies.** Lecture, three hours. Intended for sophomores and first-quarter juniors, the course is required of students who wish to graduate with a specialization in women's studies. Introduces students to the interdisciplinary and cross-cultural study of women in preparation for further investigation within traditional disciplines.

Ms. Henley

**M197. Senior Seminar in Women's Studies.** (Formerly numbered 197.) (Same as Education M197.) Discussion, three hours; laboratory, one hour. Prerequisites: course 100 plus 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 a specific topic concerning women, explores frameworks for understanding female experience (biological, economic, historical, and psychological), and refines methods for research. Fulfills Letters and Science social science or humanities breadth requirement.

Ms. Astin, Ms. Henley

## Supporting Upper Division Courses

**M107. Women in Literature.** (Same as English M107.) Prerequisite: satisfaction of Subject A requirement. A survey of literary works by and about women, the course examines the delineation of women in English and American literature, studies in historical and contemporary themes, and the evolution of forms and techniques in poetry, fiction, and biography.

Ms. Brienza, Ms. Rowe, Ms. Yeazell

**M137E. Work Behavior of Women and Men.** (Same as Psychology M137E.) Prerequisites: course 100 or Psychology 10 and junior or senior standing. Examination of work behavior of men and women. Topics include antecedents of career choice, job finding, leadership, performance evaluation, discrimination and evaluation bias, job satisfaction, and interdependence of work and family roles.

**M148. Women in Higher Education.** (Same as Education M148.) Prerequisite: upper division standing. The course examines the education and career development of women in higher education. Specifically, it focuses 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.

Ms. Astin

**M158. Women in Italian Culture.** (Same as Italian M158.) Lecture, three hours. The course is designed with the intent of examining the role that women have played in Italian society. It concentrates alternatively on the world of the medieval and Renaissance "matriarch" and on the "liberated" women of our times. Historical and political documents and social and religious taboos are presented and discussed, together with other data derived from literature and art. Italian majors are required to read texts in Italian and to prepare papers written in Italian.

Mrs. Cottino-Jones

**M163. Women in Culture and Society.** (Same as Anthropology M163.) Prerequisite: Anthropology 5 or 22. A systematic approach to the study of sex roles from an anthropological perspective. A critical review of relevant theoretical issues supported by ethnographic material from traditional cultures and contemporary American culture.

Ms. Joe, Ms. Levine

**M165. The Psychology of Gender.** (Same as Psychology M165.) Lecture, two hours; discussion, one hour. The course considers 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 the impact of gender on social interaction. Ms. Peplau

**M172. The Afro-American Woman in the U.S.** (Same as Afro-American Studies M172 and Psychology M172.) Prerequisite: upper division standing. The course focuses on the impact of the social, psychological, political, and economic forces which impact on the interpersonal relationships of Afro-American women as members of a large society and as members of their biological and ethnic group. Ms. Mays

**185. Special Topics in Women's Studies.** Prerequisites: upper division standing and one prior course in women's studies. Designed to allow 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. A 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 the women's studies specialization. Ms. Henley and the Staff

## Supporting Courses in Other Departments

**Anthropology 151.** Marriage, Family, and Kinship

**Asian American Studies 197.** Topics in Asian American Studies: 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

**English 180X.** Specialized Studies in Literature

**French 158.** The Woman in French Literature

**History 136J.** Topics in European History: Women 156C-156D-156E. Social History of American Women

197. Undergraduate Seminars

**Philosophy 192.** Philosophical Analysis of Issues in Women's Liberation

**Political Science 149A-149Z.** Special Studies in Politics: Women and the Political Process

C197A-C197F. Seminars for Majors

**Psychology 137C.** Interpersonal Relations

**Public Health 176.** Human Sexuality and Sexual Health

**Sociology 102A-102Z.** Special Topics in Sociology: Sociology of Women

160. The Demography and Sociology of Women's Economic Roles

197. Undergraduate Seminar

# College of Fine Arts

**Robert H. Gray, Dean**

# 6



UCLA's College of Fine Arts, the only undergraduate college of its kind in the University of California system, is a young, dynamic center for higher education in the arts. Its distinguished faculty of more than 200 includes visiting artists and scholars who bring a variety of exciting viewpoints to enrich the study of the arts. Its goal is to educate the artist who is connected to society.

The College of Fine Arts consists of four departments: Art, Design, and Art History; Dance; Music; and Theater Arts. The curriculum is designed to provide fine arts students with intensive training in their major within the broader liberal arts education of the University. The creative or performing artist, as well as the historian or critic, is provided an outstanding academic program.

Fine arts majors explore, through research and practice, the unique creativity of world cultures. Nonmajors are offered an educational program intended to foster a better understanding of the visual and performing arts. The college continues to support extracurricular programs in the arts for the benefit not only of the University community, but for the public as well. Such efforts include art gallery and museum exhibits, plays, films, and music and dance concerts.

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*Photo: Anna Mahler's impressive Tower of Masks dominates the Macgowan Hall courtyard.*

# College of Fine Arts

A265 Murphy Hall, 206-6465

The four departments of the College of Fine Arts both borrow from and add to the rich and varied cultural life of the campus. Students in the Department of Art, Design, and Art History are taught to understand the broad panorama of the visual arts, while those in the Dance Department have an opportunity to study ballet, modern, and ethnic dance forms. The Music Department offers specializations in composition and theory, music education, ethnomusicology, history and literature, performance, and systematic musicology. Students in the Theater Arts Department major in either theater or motion picture/television.

An informative brochure on the UCLA College of Fine Arts is available from the Student Services Office, A239 Murphy Hall, UCLA, Los Angeles, CA 90024.

## The Study List

Each quarter the student Study List must include from 12 to 17 units. After your first quarter, 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 quarter with all courses passed. The petitions must be filed and approved by the Dean of the college 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 college to continue for that quarter.

## Graduate Courses

Undergraduate students who wish to take courses numbered in the 200 series must peti-

## Majors and Degrees Offered

|   |                           |
|---|---------------------------|
| Art.....                                    | B.A., M.A., M.F.A.        |
| Art History.....                            | B.A., M.A., Ph.D.         |
| Dance.....                                  | B.A., M.A.                |
| Design.....                                 | B.A., M.A., M.F.A.        |
| Ethnic Arts: Interdisciplinary Studies..... | B.A.                      |
| Motion Picture/Television.....              | B.A., M.A., M.F.A., Ph.D. |
| Music.....                                  | B.A., M.A., M.F.A., Ph.D. |
| Theater.....                                | B.A., M.A., M.F.A., Ph.D. |

If you are interested in obtaining teaching credentials for California elementary and secondary schools, consult the Graduate School of Education.

## Bachelor of Arts Degrees

### Admission

In addition to the University of California Undergraduate Application, some departments in the College of Fine Arts may require auditions, portfolios, or evidence of creativity. Detailed information on departmental requirements will be mailed to you on receipt of the application. Deadline date for applications is November 30, 1984, for admission in Fall Quarter 1985.

tion for advance approval of the department Chair and the Dean of the college and must meet the specific qualifications. Courses numbered in the 400 and 500 series may not be applied toward the degree.

## Degree Requirements

Each student must meet six kinds of requirements for the B.A. degree: University, college, and unit requirements, as well as residence, major, and scholarship requirements. A course may be applied toward only one requirement (e.g., University or college or major requirement). The requirements are as follows.

### University Requirements

For information on the Subject A and American History and Institutions requirements, see "Undergraduate Degree Requirements" in Chapter 2 of this catalog.

## College Requirements

The general requirements of the College of Fine Arts must be completed with a grade-point average of 2.0 or better.

For specific courses that will fulfill the general college requirements and for courses preceded by M or C; consult the college office before enrolling. Courses listed below are used only as a guideline for 1984-85.

### English Composition and Rhetoric (4 Units)

English 3 with a grade of C (2.0) or better must be completed by the end of the freshman year and may not be taken on a Passed/Not Passed basis.

### Critical Reading and Writing (4 Units)

One course from English 4, \*Humanities 2A, 2B, or 2C with a grade of C (2.0) or better must be completed by the end of the sophomore year and may not be taken on a Passed/Not Passed basis.

\*If Humanities 2A, 2B, or 2C is taken to meet the critical reading and writing requirement, it may not also satisfy the literature requirement; English 4 may never be applied toward the literature requirement.

### Foreign Language (12 Units)

(1) Three quarters of one college language other than high school language or (2) level three (four units) of the same language taken in high school are required, with the other eight units made up from courses below in science, social science, or humanities. Foreign students whose entire secondary education has been taken in a language other than English may petition to be exempt from the foreign language requirement.

Proficiency examinations may not be used to complete the foreign language requirement. Some majors may require completion of the language prior to entry into the major.

### Science/Mathematics (8 Units)

One course in physical or biological science and one course in another natural science or in mathematics are required.

### Physical and Biological Science Courses:

Astronomy 3; Atmospheric Sciences 2, 3; biology (except Biology 10, 11, 30); chemistry (except Chemistry 2 for students with high school chemistry); earth and space sciences (except Earth and Space Sciences 8, 20, 115); Honors Collegium 3, 4; Kinesiology 12, 13, 14; microbiology; physics (except Physics 10).

**Other Natural Science and Mathematics Courses:** Anthropology 1, 2, 11, 124, 126P, 127P; Biology 10; Earth and Space Sciences 8, 20, 115; Geography 1, 2, 5; mathematics (no remedial, historical, or statistical); Physics 10; Psychology 15, 115, 116.

#### **Social Science (12 Units)**

Two courses from the Department of History (one in any period prior to 1600, one in any period after 1600) and one other social science course are required.

**Other Social Science Courses:** Anthropology (except Anthropology 1, 2, 11, 124, 126P, 127P, 156); economics (principles, history, and theory only); geography (except Geography 1, 2, 5); history (except medical or geological); Honors Collegium 1, 2, 6, or 21 (four units only); near Eastern languages (Ancient Near East 163A-163B, Jewish Studies 140A-140B, 141, 142); political science (except courses dealing with civil rights and law); psychology (except Psychology 15, 115, 116, education, counseling, family life, or child care); sociology (except mass communications, civil rights, education, law, criminology, marriage, family life, or child care). Note: Survey courses in history which cover "antiquity to present" may be applied only on history after 1600 or on other social science courses.

#### **Humanities (12 Units)**

One course in the arts, one course in literature, and one course in philosophy and/or religion are required. Performance, studio, or movie/film courses do not meet this requirement. Courses in your major department may not be applied toward this requirement.

**The Arts Courses:** Architecture 189, 191; Art 50 series or 101A through 122; Classics 151B, 151C, 151D (except art history majors); Dance 134A, 134B, 180A through 187A; Folklore and Mythology 118, 124; Honors Collegium 20; Music 2A-2B, 113A-113B, 130 through 135C, 138 through 148, 151A through 153C, 157 through 159, 188A-188F, 189; Theater Arts 5A, 5B, 5C, 102A through 105, 189.

**Literature Courses:** Selected courses in English, ethnic, American, or foreign literature, including works in translation; Classics 10, 20; East Asian Languages and Cultures 129; Folklore and Mythology 15, 101, 108, 130, 131; German 119A through 119J; Honors Collegium 5, 10, 12 (four units only); humanities, except those that are cross-listed (C courses); near Eastern languages (Hebrew 120, Iranian 140, Jewish Studies 150A-150B, 151A-151B).

**Philosophy/Religion Courses:** Anthropology 156; Classics 166A, 166B; East Asian Languages and Cultures 139, 172, 173, 174, 183, 184; near Eastern languages (Ancient Near East 130, Iranian 170, Islamic 110); philosophy (all lower division and selected upper division courses).

A few course areas that may NOT be applied toward the general college requirements are business, communications, creative writing, criminology, education, engineering, family life, marriage and child care, field studies, home economics, independent studies, interdisciplinary studies, journalism, law, mass media, public health, and speech. Also no 198, 199, or CED courses and no seminars, pro-seminars, or freshman seminars may be applied toward the general requirements of the college.

#### **Additional Nonmajor Department Requirements**

Three upper division courses (12 units) must be completed outside your major department. These courses may not be applied toward the general college requirements. Studio, performance, activity, and 199 courses or field studies (400 courses) may not be applied as additional nonmajor courses.

#### **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 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.

University 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 CEEB Advanced Placement Tests may be applied toward the general college 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 will be deducted before graduation.

#### **Residence Requirements**

You are "in residence" while enrolled and attending classes at UCLA as a major in the College of Fine Arts. Of the last 45 units completed for the bachelor's degree, 35 must be earned in residence in the College of Fine Arts (28 units must be upper division — 16 of which must be in the major department). No more than 18 of these 35 units may be completed in UCLA Summer Session.

Courses in University 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). Most majors

include both lower and upper division courses. Those listed as "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 and must be recommended by the chair of your major department. 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, and petitions for adjustment should be submitted to the Dean of the college when necessary.

Any department offering a major in the College of Fine Arts 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 University 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 applying to the general college and University requirements.

**Minimum Progress:** You are expected to complete satisfactorily at least 36 units during three consecutive quarters in residence, and you will be placed on probation if you fail to pass these units. You will be subject to dismissal if you fail at least 32 units in three consecutive regular quarters in residence.

#### **Ethnic Arts: Interdisciplinary Studies**

An intercollege, interdepartmental major in ethnic arts is open to students in both the College of Fine Arts and the College of Letters and Science. You enroll in the college of your choice and fulfill the breadth requirements of that college. Counseling is available in the department of your concentration. For details on this major, see the "Ethnic Arts" section later in this chapter.

#### **Honors**

To receive **Dean's Honors** in the College of Fine Arts, you must have at least 12 graded units per quarter 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 will be posted on your transcript for the appropriate quarter.

**Honors with the Bachelor's Degree** 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 3.55; *Magna cum laude*, 3.65; *Summa cum laude*, 3.8.

## Counseling and Program Planning

The College of Fine Arts offers preadmission advising, program planning in the major and general degree requirements, and individual meetings with departmental counselors and faculty, 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, College of Fine Arts, A239 Murphy Hall (825-9705).

## Graduate Study

The advanced degree programs offered in the College of Fine Arts provide graduate students with unique research opportunities when combined with special resources, such as the Film, TV, and Radio Archives, the University Research Library, the special collections of the Art, Music, and Theater Arts Libraries, and the University's exhibition and performance halls.

The College of Fine Arts cooperates with UCLA's Graduate School of Management in offering a Master of Business Administration (M.B.A.) in Arts Management. Participating students serve quarter-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 a new M.F.A. management program in the Department of Theater Arts, with options in either theater or motion picture/television.

A program in teaching is offered by the Graduate School of Education in each of the fine 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 a foreign institution, each department in the college has limitations and additional requirements. In general, samples of your work (dance audition, art portfolio, play-writing sample, etc.) are required. Detailed information can be found in the departmental listings which follow.

## Other Requirements

Requirements to fulfill each degree objective vary according to the degree and the department. See the departmental listings which follow for specific requirements and procedures.

# Art, Design, and Art History

1300 Dickson Art Center, 825-3281

### Professors

Samuel Amato, B.F.A. (*Art*)  
Albert Boime, Ph.D. (*Art History*)  
William J. Brice (*Art*)  
Raymond B. Brown, M.A. (*Art*), *Chair*  
Jack B. Carter, M.A. (*Design*)  
Susan B. Downey, Ph.D. (*Art History*)  
Elliot J. Elgart, M.F.A. (*Art*)  
Robert F. Heineken, M.A. (*Art*)  
J. Bernard Kester, M.A. (*Design*)  
David M. Kunzle, Ph.D. (*Art History*)  
Velizar Mihich (Vasa) (*Design*)  
Lee Mullican (*Art*)  
John A. Neuhart (*Design*)  
Carlo Pedretti, M.A. (*Art History*)  
Jan Stussy, M.F.A. (*Art*)

### Emeritus Professors

Laura F. Andreson, M.A.  
Alexander Badawy, D.I.A., Ph.D.  
E. Maurice Bloch, Ph.D.  
Archine V. Fetty, M.A.  
Thomas Jennings, M.A.  
Lester D. Longman, Ph.D., L.H.D., D.F.A.  
Gordon M. Nunes, M.A.  
Katharina Otto-Dorn, Ph.D.  
Frederick S. Wight, M.A.

### Associate Professors

William C. Brown, M.A. (*Design*)  
Chris Burden, M.F.A., *Acting* (*Art*)  
Barbara Drucker, M.F.A. (*Art*)  
Mitsuru Kataoka, M.A. (*Design*)  
Cecelia F. Klein, Ph.D. (*Art History*)  
Donald F. McCallum, Ph.D. (*Art History*)  
Charles Ray, M.F.A. (*Art*)  
Arnold Rubin, Ph.D. (*Art History*)  
Adrian Saxe, B.F.A. (*Design*)  
Nathan Shapira, Dottore in Architettura (*Design*)

### Assistant Professors

James W. Bassler, M.A. (*Design*)  
Irene A. Bierman, Ph.D. (*Art History*)  
Cornelia K. Breitenbach, M.F.A. (*Design*)  
Ioli Kalavrezou-Maxeiner, Ph.D. (*Art History*)  
Deborah Klimburg-Salter, Ph.D. (*Art History*)  
Alice M. McCloskey, M.A. (*Design*)  
Martin J. Powers, Ph.D. (*Art History*)  
Madeleine Sunkees, B.Ed., *Emeritus*

### Adjunct Assistant Professor

Edith A. Tonelli, Ph.D. (*Art History*)

### Visiting Lecturer

Jean S. Weisz, Ph.D. (*Art History*)

## Scope and Objectives

As the department name indicates, art, design, and art history are largely autonomous divisions. Scope and objectives are different for each, although all fields lead to Bachelor of Arts and Master of Arts degrees and all benefit from the rich and varied art resources at UCLA and in the Los Angeles community. Also offered are a Master of Fine Arts in Art and a Ph.D. in Art History.

Art courses include painting and drawing, sculpture, printmaking, photography, and new forms and concepts (which include performance, installation, and video). 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.

Design courses teach skills and organizational concepts necessary to application of art in contemporary life, including studies in visual communication (graphics, video, electronic imagery), costume, ceramics, glass, textiles, fiber, landscape, industrial, product, and interior space design.

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 a broad knowledge of art is important and provides students preparing for graduate study with a foundation for research requiring independent critical judgment.

## Bachelor of Arts in Art

### Preparation for the Major

*Required:* Art 5A, 5B, 5C, 15, 21, 22, and one course from 50, 51, 54, 55, 56, 57.

### The Major

*Required:* A minimum of 14 upper division courses, including Art 130, 133, 137, 140, 145, 147, 148, and 149, one course from 101A through 122, and five courses of art electives. It is recommended that you have each quarter's program approved by a departmental adviser.

## Bachelor of Arts in Art History

### Preparation for the Major

*Required:* Art 50, 51, 54, 55, 56, 57.

### The Major

*Required:* Twelve courses of upper division art history as follows:

(1) A total of nine courses from the following nine areas (at least three courses in one area for the concentration, at least one course each in four of the remaining areas, and two additional courses from any of the nine areas):

- (a) 101A, 101B, 101C, 102
- (b) 103A, 103B, 103C, 103D, 103E
- (c) 104A, 104B, C104C
- (d) 105A, 105B, 105C, 105D, 105E
- (e) 106A, 106B, 106C, 108A, 108B, 109A, 109B, 109C, 109D, 120A, 121A
- (f) 110A, 110B, 110C, 110D, 110E, 120B, 120C, 121B
- (g) 112A, 112B, 112C
- (h) 114A, 114B, 114C, 114D, C115A, C115B, C115C
- (i) C117A, C117B, C117C, 118A, 118B, 118C, 118D, C119A, C119B

(2) Three courses of art history electives which may include Art 125, 197, 199 (design or studio courses do not apply as electives), and no more than four units of Classics 151B, 151C, 151D.

In addition to the 12 courses (48 units) of upper division art history, three upper division courses from other departments related to the area of concentration are to be selected.

(3) Two quarters of one foreign language or equivalent. The language should be related to the concentration area and is in addition to the college foreign language requirements.

(4) It is recommended that you have each quarter's program approved by a departmental adviser.

## Bachelor of Arts in Design

### Preparation for the Major

*Required:* Art 30A, 30B, 31A, 31B, 32A, 32B, four courses from 33A, 33B, 33C, 33D, 33E, 33F, 33G, and one course from 50, 51, 54, 55, 56, 57.

### The Major

*Required:* A minimum of 12 upper division courses, including eight courses from Art 161A through 172B and four courses of art electives.

It is recommended that you have each quarter's program approved by a departmental adviser.

*Note:* Check the *Schedule of Classes* for courses restricted to majors only.

## Master of Arts in Art

### Art Specialty

#### Admission

Students are admitted 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.

### Major Fields or Subdisciplines

Drawing, painting, sculpture, printmaking, photography, video, new forms and concepts. 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 Art 100 through 299 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.

An additional 36 quarter units of art history, theory, and criticism in undergraduate and/or graduate study are required (for students with little or no art history in undergraduate work, some or all of these units may be taken as electives beyond the 20 units of graduate coursework required). Subjects related to your special interest may be substituted by petition.

A total of eight units of course 596 may be applied toward the 36 units required for the degree; four units may be applied toward the graduate course requirement.

### Comprehensive Examination Plan

Each degree is granted on the basis of the quality of work as demonstrated in the exhibition which accompanies the final comprehensive examination. The number of units of credit attained is irrelevant to this judgment.

A precluding 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.

### Design Specialty

#### Admission

Students are admitted in Fall, Winter, and Spring Quarters. An acceptable portfolio is required, in the form of slides (maximum 20) or videotape (if applying to the electronic imagery field). Acceptance is by a majority vote of the design faculty.

Applicants who have a B.A. degree or equivalent may be admitted on an unconditional basis or on a provisional basis. If you are admitted on an unconditional basis, an initial advisory committee is formed to guide you in your studies. Provisional admission is recommended for two quarters when you show great promise, but your grade-point average is below 3.0, preparation for the graduate area of specialization is insufficient as demonstrated in your

portfolio, or undergraduate preparation is inadequate as indicated in transcripts. An advisory committee is formed to outline a program of study that will allow you to continue on an unconditional basis.

### Major Fields or Subdisciplines

Communication imagery, image transfer, electronic imagery, computer imagery, costume, ceramics, glass, fiber structures, textiles, landscape design, industrial design, exhibition design.

### Course Requirements

A minimum of 36 quarter units in the department (or nondepartmental courses with the graduate adviser's consent) in Art 100 through 299 (and possibly 596) is required, with a B average. These must include a minimum of 20 quarter units of design courses numbered above 200, of which at least eight units must be from courses 290A-290B-290C and of which at least eight units must be devoted to a comprehensive project in your area of study. In addition, eight quarter units of art history are required (if you have a B.A. or B.F.A. in Art which includes a background in the history of art, you may substitute eight units in other courses that are germane to your graduate pursuit).

A total of eight units of course 596 may be applied toward the 36 units required for the degree; four units may be applied toward the graduate course requirement.

### Comprehensive Examination Plan

The comprehensive examination (offered each quarter) 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 which may include a written statement as determined by the graduate guidance committee.

## Master of Arts in Art History

### Admission

A minimum grade-point average of 3.25 overall and 3.5 in upper division art history courses is required. The Graduate Record Examination 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 your interests in art history. In addition, you must have completed six full courses in the history of art (grade of B or better and not including studio courses), with at least two courses in each group noted below. Specific areas may not be offered in satisfaction of more than one requirement.

Group A: (1) Egyptian, (2) ancient Near East, (3) classical, (4) medieval, (5) Renaissance, (6) baroque, (7) modern, and (8) American.

Group B: (1) African, (2) oceanic, (3) Native North American, (4) pre-Columbian, (5) Islamic, (6) Indian, (7) Chinese, and (8) Japanese.

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 ten courses required for the degree. Instead of taking a course, you may substitute a competency examination in the deficient area.

Prospective students may contact the Graduate Affairs Assistant, Department of Art, Design, and Art History, UCLA, Los Angeles, CA 90024, for brochures and information. The department has no special departmental application.

### Major Fields or Subdisciplines

Sixteen fields in two groups, as noted under "Admission" above.

### Foreign Language Requirement

Reading knowledge of French and German is required of all students except those intending to major in an Asian (i.e., Chinese, Japanese, South Asian), pre-Columbian, or Islamic art history area. Students majoring in Chinese or Japanese art history must substitute either Chinese or Japanese respectively for either French or German. Those majoring in a South Asian or Islamic art history area must substitute, for either French or German, an appropriate classical research language of South Asia or Islamic culture respectively. In all cases, the final decisions regarding choice must be made in consultation with, and with the consent of, the major adviser. Students majoring in pre-Columbian art history must substitute Spanish for French.

With the exception of Asian and Islamic art history majors, all students must demonstrate reading fluency in both foreign languages in any of the following ways: (1) by passing the department language examination, (2) by passing the ETS examination with a minimum score of 600, (3) by enrolling in and completing with a minimum grade of B, UCLA's French 5, German 6, and/or Spanish 25. One of these language requirements must be satisfied by the end of the second quarter of residence and the other by the end of the fifth.

Students majoring in an Asian or Islamic art history area must satisfy their European language requirement by the end of the fifth quarter of residence and may do so in any of the three ways listed above. The Asian or Islamic language requirement, however, is 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 in those courses. Details and/or exceptions must be worked out with the major adviser.

### Course Requirements

The M.A. degree requires the completion of a major and two minors. You must select an unrelated minor from the group (A or B) which does not include your major area, and you are required to take a minimum of ten 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 and 500 series). At least four of these must be in the 200 series, and no more than two may be 596 courses. You must take Art 201, four courses in the major, and two courses in each minor.

### Thesis Plan

The thesis committee is established after completion of all course requirements. At the same time, you select a thesis topic in your major field. The 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.

## Master of Fine Arts in Art

### Art Specialty

#### Admission

Students are admitted in Fall Quarter only. See "Admission" under the Master of Arts degree in Art (Art Specialty) above.

The M.A. is not prerequisite to the M.F.A. but may be elected as your 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. will not apply to the M.F.A., with the exception of the accumulative art history units.

#### Major Fields or Subdisciplines

Drawing, painting, sculpture, printmaking, photography, video, new forms and concepts. No limit to the variations, extent, or value of these designations is intended.

#### Course Requirements

A minimum of 72 quarter units in the department in Art 100 through 299 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.

An additional 40 quarter units of art history, theory, and criticism in undergraduate and/or graduate study are required (for students with little or no art history in undergraduate work, some or all of these units may be taken as

electives beyond the 40 units of graduate coursework required). Subjects related to your special interest may be substituted by petition.

A total of 12 units of course 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

Same as the plan offered for the Master of Arts degree in Art (Art Specialty), as noted above.

### Design Specialty

#### Admission

Admission requirements and procedures are essentially the same as for the M.A. (Design Specialty), except that the M.F.A. degree is the highest academic degree awarded in the studio disciplines of art and is conferred on the basis of outstanding achievement and consistent demonstration of quality throughout an original body of creative work. A higher standard of demonstrated ability and preparation in the area of intended study is usually applied in the portfolio review. M.F.A. applicants are not admitted on a provisional basis when there are deficiencies in the portfolio, preparation, or academic record.

#### Major Fields or Subdisciplines

Communication imagery, image transfer, electronic imagery, computer imagery, costume, ceramics, glass, fiber structures, textiles, landscape design, industrial design, exhibition design.

#### Course Requirements

A minimum of 72 quarter units of design courses numbered 100 to 299 is required, of which at least eight units must be from Art 290A-290B-290C and of which at least 12 units must be devoted to a comprehensive project in your area of study.

Within those 72 units, a minimum of 52 quarter units in the 200 series must be taken in the field of specialization.

A minimum of 40 quarter units of art history in undergraduate or graduate study is also required. For students with little or no art history in undergraduate work, some or all of these units may be taken as electives beyond the 40 units of graduate coursework required. You may substitute a maximum of 12 units in other courses that are germane to your graduate pursuit, with the faculty adviser's consent.

A total of 12 units of course 596 may be applied toward the graduate and elective course requirements for the degree.

### Comprehensive Examination Plan

Same as the plan offered for the Master of Arts degree in Art (Design Specialty), as noted above.

## Ph.D. in Art History

### Admission

The M.A. in Art History is required for admission to the Ph.D. degree program. 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 have 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 the M.A. in Art History 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.

The application must include, in addition to official transcripts and GRE scores, all of the following:

- (1) A standard statement of purpose (approximately 400 words).
- (2) A copy of the 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 your scholarly work, of which one must be a detailed letter of assessment and endorsement from your major adviser for the M.A.
- (4) A written statement from the intended Ph.D. major adviser of willingness to supervise your Ph.D. work.
- (5) Evidence of reading fluency in two appropriate foreign languages.

Students applying directly to the Ph.D. program from the M.A. in Art History program at UCLA follow a slightly modified procedure. For details, see the graduate affairs assistant.

Reading knowledge of French and German is requisite for admission at the Ph.D. level for those majoring in all areas except Asian, Islamic, or pre-Columbian. You may demonstrate this knowledge by submitting an ETS score of 600 or better, taking and passing the relevant department language examination(s), or completing UCLA's German 6 and/or French 5 with a grade of B or better.

Students intending to major in an Asian or Islamic art history area must demonstrate, by the means outlined above, reading fluency in either French or German. In addition, they must complete with a grade of B or better six consecutive quarter courses (or equivalent) in an appropriate Asian or Islamic language. Determination of the appropriate language and acceptable equivalencies should be worked out in advance with the intended major adviser.

Students intending to major in pre-Columbian art history must demonstrate, by the means

outlined above, reading fluency in German and Spanish. In the latter case, UCLA's Spanish 25, passed with a grade of B or better, fulfills the requirement.

Students who have passed a required foreign language at another institution should consult the chair of the department's language committee to determine if their previous examination is acceptable.

Prospective students may contact the Graduate Affairs Assistant, Department of Art, Design, and Art History, UCLA, Los Angeles, CA 90024, for brochures and information. The department has no special departmental application.

### Major Fields or Subdisciplines

See "Admission" under the Master of Arts degree in Art History above.

### Foreign Language Requirement

You are normally required to demonstrate, no later than the time of your University Oral Qualifying Examination, reading fluency in one or more foreign languages in addition to those required for admission. Among those fields requiring such reading fluency are Egypt, ancient Near East, classical, medieval, Renaissance, Islamic, pre-Columbian, and all Asian areas. The applicability of this requirement, the language(s) required, and the exact means of satisfying the requirement are determined in consultation with the major adviser.

### Course Requirements

The Ph.D. requires demonstrated competence in a major and two minors. If you choose two art history minors, one must be selected from the group (A or B) which does not include the major area (see group listings under Master of Arts in Art History above). If you choose one extra-departmental minor, it must be related to the major field in art history. The other minor may or may not be related to the major area.

You must have taken a minimum of four courses (at least one a graduate course) in one or more unrelated areas during the M.A. and/or Ph.D. program. Credit may be given for coursework at another institution.

In all, a minimum of eight graduate and upper division courses are required, of which at least three must be art history courses on the graduate (200 and 500) level. Of this total, you must take at least three, and may take up to five, extra-departmental upper division and/or graduate courses, which have to be approved by the major adviser.

### Qualifying Examinations

After completion of coursework and language study, you must take the Ph.D. written comprehensive examination to test your breadth and depth of knowledge in the major and both minor fields of study. If you fail the examination, or

any part thereof, that portion may be repeated during the subsequent quarter of residence. No further repetition will be allowed.

A dissertation topic is selected after you pass the written comprehensive examination; the members of your doctoral committee are then nominated, and the committee is appointed by the Dean of the Graduate Division.

After having submitted a dissertation proposal, you then take the University Oral Qualifying Examination, given by your doctoral committee. Assuming there is no more than one no pass vote, you may initiate the procedure to become advanced to candidacy.

### Final Oral Examination

The doctoral committee may decide, by unanimous agreement, to waive the final oral examination (not normally required). If a final oral examination is required, it is held after the final draft of the dissertation has been circulated among the committee members. In case of failure, the doctoral committee decides, by unanimous agreement, whether or not you may be reexamined.

### Lower Division Courses

**5A. Introduction to Art.** Studio, eight hours; five hours arranged. Creative work in fine arts related to historical and contemporary issues selected from media such as drawing, painting, sculpture, printmaking, photography, and new forms and concepts (performance, video, nonobject art).

**5B. Introduction to Art.** Studio, eight hours; five hours arranged. Prerequisite: course 5A. Continuation of course 5A.

**5C. Introduction to Art.** Studio, eight hours; five hours arranged. Prerequisites: courses 5A, 5B. Continuation of courses 5A, 5B.

**15. Intermediate Art.** Studio, eight hours; five hours arranged. Prerequisites: courses 5A, 5B, 5C. Continuation of courses 5A, 5B, 5C, with increased emphasis on individual creative development.

**21. Analysis and Criticism.** Prerequisites: courses 5A, 5B, 5C, 15. Analysis and criticism of individual creative work and ideas.

**22. Art and Artists/History and Theory.** Lecture/discussion, three hours. Discussion and analysis of artists and art, historical and contemporary.

**30A. Nature of Design.** Lecture, three hours; discussion, one hour. Open to nonmajors; not open for credit to students with credit for former course 30A. Understanding the design process, with emphasis on development of a visual language; a study of historic, scientific, technological, economic, and cultural factors influencing design in our physical environment.

**30B. Design Resources.** Lecture/discussion, three hours. Prerequisite: course 30A. Investigation of resources for creativity as an introduction to research.

**31A. Fundamentals of Design: Color.** Lecture, two hours; laboratory, four hours. Course 32A may be taken concurrently. Exploration of color in theory and practice. Development and articulation of sensory concepts. Mr. Vasa in charge

**31B. Fundamentals of Design: Form.** Lecture, two hours; laboratory, four hours. Course 32B may be taken concurrently. Interrelation of three-dimensional form concepts as a foundation for creativity; origination and solution of problems. Mr. Vasa in charge

**32A. Perceptual Drawing.** Demonstration/discussion/laboratory, eight hours. Course 31A may be taken concurrently. Not open for credit to students with credit for former course 32A. Translation of perception through delineation, drawing, and other descriptive media. Mr. Vasa in charge

**32B. Visual Presentation.** Demonstration/discussion/laboratory, eight hours. Prerequisite: course 32A. Course 31B may be taken concurrently. Translation of perception through delineation, drawing, and other descriptive media. Mr. Vasa in charge

**33A. Materials and Processes: Ceramics (2 units).** Demonstration/discussion/laboratory, four hours. Introduction to processes and media in design. Forming and processing techniques in traditional and contemporary ceramics. May be repeated once. Mr. Saxe in charge

**33B. Materials and Processes: Visual Representation (2 units).** Demonstration/discussion/laboratory, four hours. Introduction to processes and media in design. Use of drafting instruments. Measuring and construction methods. Orthographic and isometric projection. Information analysis and visualization necessary to support the design task. May be repeated once.

**33C. Materials and Processes: Graphic Processes (2 units).** Demonstration/discussion/laboratory, four hours. Introduction to processes and media in design. Photography as a means of depicting and recording design concepts. Introduction to photo-mechanical techniques and photographic generation of images; introduction to graphic presentation production. May be repeated once.

Mr. Neuhart in charge

**33D. Materials and Processes: Production Processes (2 units).** Demonstration/discussion/laboratory, four hours. Introduction to media and processes in design. Introduction to the use of industrial technology. Processes covering the methods of production and handforming. Emphasis on finishing with industrial materials and systems, including plastics, metal, woods, cardboard, and other materials. May be repeated once.

Mr. Shapira in charge

**33E. Materials and Processes: Glass (2 units).** Demonstration/discussion/laboratory, four hours. Introduction to media and processes in design. Forming and processing techniques in traditional and contemporary glass. May be repeated once.

**33F. Materials and Processes: Textiles (2 units).** Demonstration/discussion/laboratory, four hours. Introduction to media and processes in design. Fundamental methods of textile structure and design. May be repeated once.

Mr. Kester in charge

**33G. Materials and Processes: Design Photography (2 units).** Demonstration/discussion/laboratory, four hours. Introduction to media and processes in design. Photography as a means to visualize design concepts. Introduction to camera operation, the processing of photographic materials, laboratory and lighting procedures. Use of the design area laboratory. May be repeated once.

Mr. Vasa in charge

**34A-34B. History of Design.** Lecture, three hours; discussion, one hour. Course 34A is prerequisite to 34B. Analysis of significant concepts of form in relation to social, technological, and historical developments.

**50. Ancient Art.** Lecture, three hours; quiz, one hour. Prehistoric, Egyptian, Mesopotamian, Aegean, Greek, Hellenistic, and Roman art and architecture. Ms. Downey

**51. Medieval Art.** Lecture, three hours; quiz, one hour. Early Christian, Byzantine, Islamic, Carolingian, Ottoman, Romanesque, and Gothic art and architecture. Ms. Kalavrezou-Maxeiner

**54. Modern Art.** Lecture, three hours; quiz, one hour. Art and architecture from 1800 to the present in Europe and the United States.

Mr. Boime, Mr. Kunzle

**55. Africa, Oceania, and Native America.** Lecture, three hours; quiz, one hour. Comparative approach, emphasizing economic, cultural, and historical aspects of selected artistic traditions which developed outside the spheres of influence of the major European and Asiatic civilizations. Ms. Klein, Mr. Rubin

**56. Asian Art.** Lecture, three hours; discussion, one hour. A survey of the major artistic monuments of the Indo-Iranian, Southeast and Central Asian, and East Asian cultures, concentrating on formal and iconographical problems, as well as the social and political conditions under which artworks were patronized and produced.

Ms. Klimburg-Salter, Mr. Powers

**57. Renaissance and Baroque Art.** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for former courses 52 and 53. History of art and architecture in Western Europe from 1400 to 1750.

Ms. Weisz

## Upper Division Courses

### History and Theory of Art

**101A. Egyptian Art and Archaeology.** Lecture, three hours. A study of architecture, sculpture, painting, and minor arts during the Predynastic period and Old Kingdom.

**101B. Egyptian Art and Archaeology.** Lecture, three hours. A study of architecture, sculpture, painting, and minor arts during the First Intermediate period, Middle Kingdom, and Second Intermediate period.

**101C. Egyptian Art and Archaeology.** Lecture, three hours. A study of architecture, sculpture, painting, and minor arts during the Empire (or New Kingdom).

**102. Art of the Ancient Near East.** A study of architecture, sculpture, painting, and minor arts in Mesopotamia, Asia Minor, North Syria, Phoenicia, Palestine, Persia, and Cyprus from the origins to the 5th century B.C.

**103A. Greek Art.** Lecture, three hours. Prerequisite: course 50. A survey of the art and architecture of Greece from the Archaic period through the 5th century B.C.

Ms. Downey

**103B. Hellenistic Art.** Lecture, three hours. Prerequisites: courses 50, 103A. The art and architecture of the Greek world from the 4th through the 1st century B.C., including the transmittal of Greek art forms to the Roman world.

Ms. Downey

**103C. Roman Art.** Lecture, three hours. Prerequisite: course 50. The art and architecture of Rome and its Empire from ca. 300 B.C. to A.D. 300.

Ms. Downey

**103D. Etruscan Art.** Lecture, three hours. Prerequisite: course 50. The arts of the Italic peninsula from ca. 1000 B.C. to the end of the Roman Republic.

Ms. Downey

**103E. Late Roman Art.** Lecture, three hours. Prerequisites: courses 50, 103C. The art of the Roman Empire from the 2nd through the 4th century (A.D.).

Ms. Downey, Ms. Kalavrezou-Maxeiner

**104A. Western Islamic Art.** (Formerly numbered 104B.) Lecture, three hours. Not open for credit to students with credit for former course 104B. From the Tigris and Euphrates Rivers to Spain, 7th to 16th century.

Ms. Bierman

**104B. Eastern Islamic Art.** (Formerly numbered 104C.) Lecture, three hours. Not open for credit to students with credit for former course 104C. From the Tigris and Euphrates Rivers through Afghanistan and parts of central Asia; the Ottoman Empire.

Ms. Bierman

**C104C. Problems in Islamic Art.** (Formerly numbered 104D.) Lecture, three hours. Not open for credit to students with credit for former course 104D. The course deals with either monuments or theoretical problems related to Islamic culture and artistic production. Concurrently scheduled with course C214.

Ms. Bierman

**105A. Early Christian Art.** Lecture, three hours. Prerequisite: course 51 or consent of instructor. The origins and development of the architecture, sculpture, and painting of early Christianity to the iconoclastic controversy.

Ms. Kalavrezou-Maxeiner

**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. The theory and development of Byzantine art from the iconoclastic controversy to 1453 and the diffusion of Byzantine art in Armenia, Georgia, the Caucasus, and Russia.

Ms. Kalavrezou-Maxeiner

**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.

Mr. Pedretti, Ms. Weisz

**106C. Italian Art of the Cinquecento.** Lecture, three hours. Prerequisite: course 57. Art and architecture of the 16th century.

Mr. Pedretti, Ms. Weisz

**108A. Northern Renaissance Art.** Lecture, three hours. Prerequisite: course 57. Painting and sculpture in the Northern Renaissance.

**108B. Northern Renaissance Art.** Lecture, three hours. Prerequisite: course 108A. 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.

Mr. Pedretti, Ms. Weisz

**109B. Baroque Art.** Lecture, three hours. Prerequisite: course 109A. Art and architecture of Northern Europe, 16th to late 17th century.

Mr. Kunzle

**109C. European Art of the 18th Century.** Lecture, three hours. Prerequisite: course 57. Painting, architecture, and sculpture of the 18th century examined in the light of political and intellectual developments. Special emphasis on the effect of the rise of democratic institutions, especially the French Revolution.

Mr. Kunzle

**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 — the development and influence of David, Ingres, and Delacroix.

Mr. Kunzle

**110B. European Art of the 19th Century: Realism and Impressionism.** Lecture, three hours. Prerequisite: course 54. An inquiry into the problem of realism, with emphasis on French art, but including developments in England and Germany.

Mr. Kunzle

**110C. European Art of the 19th and 20th Centuries: Postimpressionism to Surrealism.** Lecture, three hours. Prerequisite: course 54. A study of the major developments in modern art, 1880s to 1930, including Seurat, Cezanne, Gauguin, Van Gogh, Art Nouveau, Fauvism, German expressionism.

Mr. Boime, Mr. Kunzle

**110D. Contemporary Art.** Lecture, three hours. Prerequisite: course 54. European and American art since World War II.

Mr. Kunzle

**110E. Political Perspectives on Contemporary Art (Post-World War II).** Prerequisite: course 54. Includes vanguard painting in the U.S. (Picasso, abstract expressionism, and pop art, etc.), and the popular media of posters, comic strips, and murals, all of which are analyzed according to the dominant values under capitalism: alienation, consumerism, racism, imperialism, and sexism. Antidotal emphasis is on protest art and women's art in the U.S. and the art of the socialist cultures of Cuba since 1959 and Chile from 1970 to 1973. Mr. Kunzle

**112A. American Art.** Lecture, three hours. Architecture in the United States from the Colonial period to the 19th century.

**112B. American Art.** Lecture, three hours. Painting and sculpture in the United States from the Colonial period to the 19th century.

**112C. American Art.** Lecture, three hours. Art and architecture in the United States in the 20th century.

**114A. The Early Art of India.** Lecture, three hours. Not open to freshmen. Survey of Indian art from the Indus Valley cultures to the 10th century. Emphasis on the Buddhist and Hindu backgrounds of the arts. Ms. Klimburg-Salter

**114B. Chinese Art.** Lecture, three hours. Not open to freshmen. Survey of the arts of China from the Neolithic times to the 18th century. The various arts are related to the developing historical background of the country. Mr. Powers

**114C. Japanese Art.** Lecture, three hours. Not open to freshmen. Japanese art from its beginning in prehistory through the 19th century. Emphasis on the development of Buddhist art and its relationship with the culture. Mr. McCallum

**114D. The Later Art of India.** Lecture, three hours. Prerequisite: course 114A or consent of instructor. Survey of Indian art from the 10th to the 19th century. The decline of Buddhist art, the last efflorescence of Hindu architecture, Muslim painting and architecture, and Rajput painting. Ms. Klimburg-Salter

**C115A. Advanced Indian Art.** (Formerly numbered 115A.) Lecture, three hours. Prerequisite: course 114A. Study in Indian sculpture and architecture. Concurrently scheduled with course C257. Ms. Klimburg-Salter

**C115B. Advanced Chinese Art.** (Formerly numbered 115B.) Lecture, three hours. Prerequisite: course 114B. Study in Chinese painting and sculpture. Concurrently scheduled with course C258. Mr. Powers

**C115C. Advanced Japanese Art.** (Formerly numbered 115C.) Lecture, three hours. Prerequisite: course 114C. Study in Japanese painting and sculpture. Concurrently scheduled with course C259. Mr. McCallum

**C117A. Advanced Studies in Pre-Columbian Art: Mexico.** (Formerly numbered 117A.) Lecture, three hours. Prerequisite: course 118B or consent of instructor. A study of the 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. Ms. Klein

**C117B. Advanced Studies in Pre-Columbian Art: Central America.** (Formerly numbered 117B.) Lecture, three hours. Prerequisite: course 118B or consent of instructor. A study of the art of selected cultures of southern Mesoamerica and the remainder of Central America from ca. 2000 B.C. to the Conquest, with particular emphasis on the history and iconography of the art of the Maya. Concurrently scheduled with course C218B. Ms. Klein

**C117C. Advanced Studies in Pre-Columbian Art: The Andes.** (Formerly numbered 117C.) Lecture, three hours. Prerequisite: course 118B or consent of instructor. A study of the art of selected cultures of Colombia, Ecuador, Peru, and Bolivia from ca. 4000 B.C. to the Conquest, with particular emphasis on the history and iconography of the art of Peru. Concurrently scheduled with course C218C. Ms. Klein

**118A. The Arts of Oceania.** Lecture, three hours. Prerequisite: course 55 or consent of instructor. Survey of the arts of the major island groupings of the Pacific, emphasizing style-regions and broad historical relationships. Ms. Klein, Mr. Rubin

**118B. The Arts of Pre-Columbian America.** Lecture, three hours. Prerequisite: course 55 or consent of instructor. Survey of the sequence of cultures which developed in the area between (and including) Mexico and Peru from ca. 1000 B.C. to the Conquest. Ms. Klein

**118C. The Arts of Sub-Saharan Africa.** Lecture, three hours. Prerequisite: course 55 or consent of instructor. The early arts of Nigeria and a selection of other traditions, emphasizing sculpture. Mr. Rubin

**118D. The Arts of Native North America.** Lecture, three hours. Prerequisite: course 55 or consent of instructor. Survey of painting, sculpture, and other arts from the Eskimo to the peoples of the Caribbean and the Southwestern United States. Ms. Klein, Mr. Rubin

**C119A. Advanced Studies in African Art: Western Africa.** (Formerly numbered 119A.) Lecture, three hours. Prerequisite: course 118C or consent of instructor. Consideration of the network of stylistic, historical, and cultural relationships existing among the peoples of the upper Niger River Valley and adjacent portions of the Western Guinea Coast. Concurrently scheduled with course C216A. Mr. Rubin

**C119B. Advanced Studies in African Art: Central Africa.** (Formerly numbered 119B.) Lecture, three hours. Prerequisite: course 118C or consent of instructor. Northern and Eastern Nigeria, Cameroun, and the Ogowe River Basin. Concurrently scheduled with course C216B. Mr. Rubin

**120A. History of Prints.** Lecture, three hours. Development of style and techniques of expression in the graphic arts from the 15th to the early 16th century.

**120B. History of Prints.** Lecture, three hours. Development of style and techniques of expression in the graphic arts from the 16th to the early 19th century.

**120C. History of Prints.** Lecture, three hours. Development of style and techniques of expression in the graphic arts of the later 19th and 20th centuries.

**121A. Critical and Historical Studies in Drawing.** Lecture, three hours. Development of style and means of expression in drawing from the late Middle Ages to the early Renaissance.

**121B. Critical and Historical Studies in Drawing.** Lecture, three hours. Development of style and means of expression in drawing from the late Renaissance to the present.

**122. History of Style and Ornament.** Lecture, three hours. Development of stylistic ideas and motifs in the Western world and their expression in design media from the Renaissance to 1900. A study in connoisseurship.

**125. Tutorial Conferences.** Discussion, two hours. Prerequisites: courses 50, 51, 54, 57. Limited to undergraduate art history majors. Discussion of selected art topics, with emphasis on related readings in music, literature, history, and philosophy. Oral reports. P/NP grading.

## Art

**130. Drawing.** Studio, eight hours; five hours arranged. Prerequisites: courses 5A, 5B, 5C, 15, 21, or consent of instructor. Varied media and subject; drawing as an intrinsically expressive mode. May be repeated for a maximum of sixteen units. Mr. Mullican, Mr. Stussy (F,W,Sp)

**133. Painting.** Studio, eight hours; five hours arranged. Prerequisites: courses 5A, 5B, 5C, 15, 21, or consent of instructor. Varied media, purposes, subjects, structures, presentation, meaning. May be repeated for a maximum of sixteen units. (F,W,Sp)

**137. New Forms and Concepts.** Studio, eight hours; five hours arranged. Prerequisites: courses 5A, 5B, 5C, 15, 21, or consent of instructor. Varied purposes, forms, processes, post-concept, other approaches to art and nonart, objects, events, installations, and non-studio pieces, film, and video. May be repeated for a maximum of sixteen units. Mr. Burden and the Staff (F,W,Sp)

**140. Printmaking.** Studio, eight hours; five hours arranged. Prerequisites: courses 5A, 5B, 5C, 15, 21, 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 sixteen units. Mr. R. Brown and the Staff (F,W,Sp)

**145. Sculpture.** Studio, eight hours; five hours arranged. Prerequisites: courses 5A, 5B, 5C, 15, 21, 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 sixteen units. Mr. Ray and the Staff (F,W,Sp)

**147. Photography.** Studio, eight hours; five hours arranged. Prerequisites: courses 5A, 5B, 5C, 15, 21, or consent of instructor. Selected studies in photography, historical and contemporary: documentation, non-silver methods, extended forms, color, mixed media. Photography as a medium of artistic expression. May be repeated for a maximum of sixteen units. Mr. Heinecken and the Staff (F,W,Sp)

**148. Advanced Analysis and Criticism.** Discussion, four hours; studio, nine hours arranged. Prerequisites: courses 5A, 5B, 5C, 15, 21, or consent of instructor. Analysis and criticism of individual creative work and ideas. May be repeated for a maximum of sixteen units. (F,W,Sp)

**149. Advanced Art and Artists/History and Theory.** Lecture/discussion, three hours. Prerequisite: consent of instructor. Discussion and analysis of artists and art, historical and contemporary. May be repeated twice for credit. (F,W,Sp)

## Design

### (I) Comparative Studies in Design

**161A. Ceramics.** Lecture, three hours; laboratory, to be arranged. The evolution of ceramic form through geographic, social, and technological influences. Mr. Saxe

**161B. World Costume.** Lecture, three hours; laboratory, to be arranged. Not open to students with credit for former course 161B. Costume and body ornamentation; symbolic significance and evolving forms within their social, cultural, and geographic context. Ms. McCloskey

**161C. Graphics.** Lecture, three hours; laboratory, to be arranged. Symbols, signs, and images, within social, cultural, and historical contexts. Mr. W. Brown, Mr. Neuhaert

**161D. Glass.** Lecture, three hours; laboratory, to be arranged. The evolution of glass form and technology through geographic and sociological influences.

**161E. Industrialization.** Lecture, three hours; laboratory, to be arranged. Industry, design, and society: their evolution and changing relationships.

**161F. Landscape.** Lecture, three hours; laboratory, to be arranged. The evolution and analysis of concepts affecting the aesthetic and ecological quality of the landscape.

**161G. Shelter.** Lecture, three hours; laboratory, to be arranged. The development of interior spaces in relation to structure, visual quality, function, human needs, and behavior.

**161H. Textiles.** Lecture, three hours. The development of textile forms through geographic, cultural, stylistic, and technological influences. Mr. Kester

**161J. Video Imagery.** Lecture, three hours; laboratory, to be arranged. Analysis of videographic form. Mr. Kataoka, Mr. Neuhaert



**161K. Historic Fashions.** Lecture, three hours; discussion, two hours. Fashions and stylistic changes in Western dress from the late medieval period to the present time, studied in relationship to the social and cultural background of each era. Ms. McCloskey

## (II) Concept and Form in Design

**162A. Ceramics.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 30A, 30B, 31A, 31B, 32A, 32B, or equivalent. Creative development of ceramic materials and processes, with emphasis on handbuilding methods; investigation and analysis of formal and expressive content. May be repeated once. Mr. Saxe

**162B. Ceramics.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 30A, 30B, 31A, 31B, 32A, 32B, 162A, or equivalent. Emphasis on wheel-forming methods and materials science as sources of aesthetic content. May be repeated once. Mr. Saxe

**163A. Costume.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 30A, 30B, 31A, 31B, 32A, 32B, or equivalent. Not open to students with credit for former course 163A. Introduction to the creative process in designing contemporary costume. May be repeated once. Ms. McCloskey

**163B. Costume.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 30A, 30B, 31A, 31B, 32A, 32B, 163A, or equivalent. Not open to students with credit for former course 163B. Further development of the design process, with emphasis on the symbolic aspect of contemporary costume. May be repeated once. Ms. McCloskey

**164A. Fiber Structure.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 30A, 30B, 31A, 31B, 32A, 32B, or equivalent. Design and construction of woven forms. May be repeated once. Mr. Bassler, Mr. Kester

**164B. Fiber Structure.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 30A, 30B, 31A, 31B, 32A, 32B, or equivalent. The derivation of non-loom methods of fabric construction using pliable elements. May be repeated once. Mr. Bassler, Mr. Kester

**165A. Graphics.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 30A, 30B, 31A, 31B, 32A, 32B, or equivalent. The development of letterforms, typography, and reproduction technology. May be repeated once. Mr. W. Brown, Mr. Neuhart

**165B. Graphics.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 30A, 30B, 31A, 31B, 32A, 32B, 165A, or equivalent. Empiric and systematic graphic concepts, including methods, symbols, and media technology. May be repeated once. Mr. W. Brown, Mr. Neuhart

**166A-166B. Glass.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 30A, 30B, 31A, 31B, 32A, 32B, or equivalent. Course 166A is prerequisite to 166B. The development of forms in glass; methods including blowing, molding, and coldworking. Each course may be repeated once.

**167A-167B. Form in Industrialized Materials.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 30A, 30B, 31A, 31B, 32A, 32B, or equivalent. Course 167A is prerequisite to 167B. Theories and applications of technological materials. Each course may be repeated once.

**168A. Landscape.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 30A, 30B, 31A, 31B, 32A, 32B, or equivalent. The modification, conservation, and utilization of natural land elements. May be repeated once.

**168B. Landscape.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 30A, 30B, 31A, 31B, 32A, 32B, 168A, or equivalent. The specific relationship of modified natural elements to human requirements. May be repeated once.

**169A-169B. Product.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 30A, 30B, 31A, 31B, 32A, 32B, or equivalent. Course 169A is prerequisite to 169B. Product development in industry; function, aesthetics, and material properties as they relate to human needs. Each course may be repeated once. Mr. Shapira

**170A-170B. Interior Spaces.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 30A, 30B, 31A, 31B, 32A, 32B, or equivalent. Course 170A is prerequisite to 170B. Not open to students with credit for former courses 170A and 170B. The definition of structure and space in relation to human needs. Each course may be repeated once. Mr. Shapira

**171A. Textiles.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 30A, 30B, 31A, 31B, 32A, 32B, or equivalent. Systems of fabric surface organization, including the study of color, pattern, and methods of printing. May be repeated once. Ms. Breitenbach

**171B. Textiles.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 30A, 30B, 31A, 31B, 32A, 32B, or equivalent. Dye systems and theories, including methods of application to fabrics. May be repeated once. Mr. Bassler, Ms. Breitenbach

**172A. Video Imagery.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 30A, 30B, 31A, 31B, 32A, 32B, or equivalent. Introduction to electronic image making; videotape and "live" representation. May be repeated once. Mr. W. Brown, Mr. Kataoka, Mr. Neuhart

**172B. Video Imagery.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 30A, 30B, 31A, 31B, 32A, 32B, 172A, or equivalent. Electronic audiographic recording explored for its sensory potential; videotape as record of process and content levels. May be repeated once. Mr. W. Brown, Mr. Kataoka, Mr. Neuhart

## (III) Proseminars in Design

**189. Topics in Design.** Lecture/discussion, three hours; laboratory, to be arranged. Prerequisite: consent of adviser and instructor. Faculty members examine specific problems relevant to design theory and performance. Topics are announced in advance. May be repeated for a maximum of sixteen units.

**193. Proseminar in Design: Senior Studies.** Proseminar, three hours. Prerequisite: consent of adviser. Open to senior and advanced students through design faculty advisers. Faculty members examine specific problems relevant to design theory and performance. Topics are announced in advance. May be repeated twice.

## Special Studies

**197. Honors Course.** Hours to be arranged. Prerequisites: 3.0 GPA overall, 3.5 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.

**201. Historiography of Art History.** Seminar, two hours. A critical study of the various approaches to art history through the centuries. The course may concentrate on one time period, on the work of one or more authors, or on a particular methodology.

**202. Methodology of Art History (2 to 8 units).** Sections oriented to the development and refinement of specialized research skills appropriate to particular periods and areas in the history of art.

**203. Museum Studies.** Seminar, two hours. Course focuses on 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 the history and connoisseurship of the graphic arts in the Western world. Group or individual studies often culminate in professionally directed exhibitions produced by the Grunwald Center for the Graphic Arts.

**206. Studies in Drawings.** Seminar, two hours. Critical studies in the history and connoisseurship of draughtsmanship in the Western world. Individual studies emphasize professional presentation. Group studies may culminate in exhibitions sponsored by the Grunwald Center for the Graphic Arts.

**210. Egyptian Art.** Seminar, two hours. Prerequisites: courses 101A, 101B, 101C, 102. A course designed to cover art in Egypt during the Late period and the Greco-Roman period. Students should be ready to prepare for every meeting a briefing of a topic from archaeological memoirs, not to exceed ten minutes. There are some lectures.

**213. Problems in Islamic Art.** Seminar, two hours. The art and architecture of the Islamic world (Spain to Iran) from the 7th to the 17th century. The seminar deals with either monuments or theoretical problems relating to Islamic culture and artistic production.

**C214. Problems in Islamic Art.** Lecture, three hours. Prerequisite: consent of instructor. The course deals with either monuments or theoretical problems related to Islamic culture and artistic production. Concurrently scheduled with course C104C. Ms. Bierman

**C216A. Advanced Studies in African Art: Western Africa.** Lecture, three hours. Prerequisite: course 118C or consent of instructor. Consideration of the network of stylistic, historical, and cultural relationships existing among the peoples of the upper Niger River Valley and adjacent portions of the Western Guinea Coast. Concurrently scheduled with course C119A. Mr. Rubin

**C216B. Advanced Studies in African Art: Central Africa.** Lecture, three hours. Prerequisite: course 118C or consent of instructor. Northern and Eastern Nigeria, Cameroun, and the Ogowe River Basin. Concurrently scheduled with course C119B. Mr. Rubin

**C218A. Advanced Studies in Pre-Columbian Art: Mexico.** Lecture, three hours. Prerequisite: course 118B or consent of instructor. A study of the 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. Ms. Klein

**C218B. Advanced Studies in Pre-Columbian Art: Central America.** Lecture, three hours. Prerequisite: course 118B or consent of instructor. A study of the art of selected cultures of southern Mesoamerica and the remainder of Central America from ca. 2000 B.C. to the Conquest, with particular emphasis on the history and iconography of the art of the Maya. Concurrently scheduled with course C117B. Ms. Klein

**C218C. Advanced Studies in Pre-Columbian Art: The Andes.** Lecture, three hours. Prerequisite: course 118B or consent of instructor. A study of the art of selected cultures of Colombia, Ecuador, Peru, and Bolivia from ca. 4000 B.C. to the Conquest, with particular emphasis on the history and iconography of the art of Peru. Concurrently scheduled with course C117C. Ms. Klein

**220. The Arts of Africa, Oceania, and Pre-Columbian America.** Seminar, two hours. Typically dealing with some aspect of art in Africa, Oceania, or Native America, or cross-cultural and comparative topics. Interdisciplinary approaches and historical, cultural, social, and economic issues are emphasized. Twenty-minute oral presentation and paper (12-15 pages) are required. Ms. Klein, Mr. Rubin

**221. Topics in Classical Art.** Lecture, two to three hours. Studies in Parthian art. A site-by-site survey of the Near East (Afghanistan, Iran, Iraq, Syria) during the period of Greek and Parthian control.

Ms. Downey

**223. Classical Art.** Seminar, two hours. Studies in Greco-Roman art and archaeology. Studies of specific periods, sites, or artistic media. Ms. Downey

**225. Medieval Art.** Seminar, two hours. Studies in selected topics in Byzantine and European medieval art. Ms. Kalavrezou-Maxeiner

**226A-226B. Medieval Art and Architecture.** Studies in selected topics in Byzantine and European medieval art. Seminar extends over two consecutive quarters. Ms. Kalavrezou-Maxeiner

**229. Renaissance and Baroque Paleography.** Seminar. Prerequisites: Italian and working knowledge of Latin. A workshop approach to documents pertaining to artistic commissions from the 15th to the 17th century in Italy to study various aspects of handwriting in official and private deeds, correspondence, treatises, and inscriptions. Mr. Pedretti

**230. Italian Renaissance Art.** Seminar, two hours. Prerequisite: knowledge of Italian. A study of various aspects of Leonardo's theoretical approach to art in terms of sources and the impact on followers.

Mr. Pedretti, Ms. Weisz

**231. Leonardo and Renaissance Theory of Art.** Seminar, two hours. Prerequisite: knowledge of Italian. A study of various aspects of Leonardo's theoretical approach to art in terms of sources and the impact on followers. Mr. Pedretti

**235. Northern Renaissance Art.** Seminar, two hours. Prerequisite: knowledge of German. The seminar focuses on a selected topic (e.g., a particular artist, trend, or problem). Research papers and oral reports are required.

**240. Baroque Art.** Seminar, two hours. The seminar focuses on a selected topic (e.g., a particular artist, trend, or problem). Research papers and oral reports are required. Language requirements depend on area of focus.

**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. Ms. Bennett

**253. Modern Art.** Seminar, two hours. Changing topics in modern art (including illustration and other popular forms) which reflect the interests of particular faculty members. Political and economic factors affecting the arts of France and Germany at various times are emphasized.

Mr. Boime, Mr. Kunzle, Ms. Tonelli

**255. American Art.** Seminar, two hours. Advanced studies in the evolution of American art, chiefly architecture and painting from the 18th to the early 20th century. Criticism and evaluation of scholarship in the field with innovative research directed toward professional presentation. Ms. Tonelli

**C257. Advanced Indian Art.** Lecture, three hours. Prerequisite: course 114A. Study in Indian sculpture and architecture. Concurrently scheduled with course C115A. Ms. Klimburg-Salter

**C258. Advanced Chinese Art.** Lecture, three hours. Prerequisite: course 114B. Study in Chinese painting and sculpture. Concurrently scheduled with course C115B. Mr. Powers

**C259. Advanced Japanese Art.** (Formerly numbered 259.) Lecture, three hours. Prerequisite: course 114C. Study in Japanese painting and sculpture. Concurrently scheduled with course C115C.

Mr. McCallum

**260. Asian Art.** Seminar, two hours. Advanced studies in the secular and religious artistic traditions of India, China, Japan, and adjacent regions. Topics and geographical areas vary each term.

Ms. Klimburg-Salter, Mr. McCallum, Mr. Powers

**265. Fieldwork in Archaeology (2 to 8 units).** Participation in archaeological excavations or other archaeological research under supervision of the staff.

**271. Graduate Painting (2 to 8 units).** Hours to be arranged. Tutorial studies in traditional and new forms and concepts media, as well as in our media specializations. Independent development and original research are fundamental objectives of the course.

**272. Graduate Printmaking (2 to 8 units).** Tutorial studies in traditional and experimental printmaking. Selected studies in intaglio, lithograph, woodcut, silk screen, photo printmaking, and mixed media.

Mr. Brown

**273. Graduate Sculpture (2 to 8 units).** Tutorial studies with specific attention to the ongoing nature, specificity, and approach to the student's particular discipline. Individual studio visits and consultation.

Mr. Ray

**274. Graduate Photography (2 to 8 units).** A tutorial or tutorial/seminar course concerned with the particular artistic development of each student's personal photographic artwork. Emphasis on the expressive, original, humanistic values of individual art. Adjacent projects in the history and theory of the photographic medium. Mr. Heinecken

**279. Seminar in Art.** Aspects of current and historic art. Being an artist. Sources, ideas, processes, development, individualization, evaluation. Art and non-art. Art in society. Content, formal and aesthetic issues. Language, perception, reference structures, media.

**280. Communication Imagery (2 to 8 units).** Laboratory, two to four hours. Exploration of graphic processes in visual systems. Design theory and procedures related to typography, letterform, photography, and the graphic film as they communicate visually (i.e., poster, brochure, book, film, and exhibition).

Mr. Neuhart

**281. Image Transfer (2 to 8 units).** Laboratory, two to four hours. Advanced experimental work in print processes. Employment of the fixed image, such as offset lithography, offset or letter press, screen printing, and emulsion printing, through photo/mechanical means.

**282. Electronic Imagery (2 to 8 units).** Laboratory, two to four hours. Development of expressive and design applications in video and computer-generated forms. The manipulation of visual, time, motion, and aural characteristics of electronic imagery is developed with video cameras, VTR, and electronic synthesizers experienced and viewed on television monitors or print forms; images are stored on videotapes for later analysis. Mr. Kataoka

**283. Costume (2 to 8 units).** Seminar, two hours; laboratory, two hours. Advanced formulation and development of design ideas for contemporary fashion, dance, drama, or ritual. Research on the evolution of style and modes of expression in historical and modern costumes. Ms. McCloskey

**284. Ceramics (2 to 8 units).** Seminar, two hours; laboratory, two hours. Advanced research and application of ceramic theory and methodology. Emphasis on the development of a responsible personal aesthetic. Includes, but is not limited to, investigations of clay and glaze design technology, design for industry, clay as medium, and the historical importance of ceramics as a socially responsible discipline.

Mr. Saxe

**285. Glass (2 to 8 units).** Laboratory, two to four hours. Exploration and intensive investigation of processes and attitudes toward glass as a tool of personal expression and creative discipline. Mr. Marquis

**287. Design and Structure (2 to 8 units).** Laboratory, two to four hours. Emphasis on developing methods of critical evaluation. Work is of a subjective and expressive nature in areas of fiber, ceramics, graphics, and visual presentation. Exploration of form, with emphasis on experimentation with materials and processes. Mr. Vasa

**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. Mr. Bassler, Mr. Kester

**289. Textiles (2 to 8 units).** Laboratory, two to four hours. Advanced experimental work with the elements of fabric design, including surface manipulation and methods of fabrication, which may include but are not limited to dye and printing processes.

Ms. Breitenbach

**290A-290B-290C. Design Seminar: A Collaborative View.** Seminar, three hours:

**290A. Formalization Processes.** Critical examination of theoretical concepts underlying the design process, including the initiation of an idea, its interpretation, and execution by the designer.

**290B. Design Programming.** Critical examination of idea development into model or procedural form for execution and/or production by others.

**290C. Visual Communication.** Critical examination of imagery in its social context.

**291. Landscape Design (2 to 8 units).** Laboratory, two to four hours. Articulation of landscape elements, including conservation and planning.

**292. Shelter (2 to 8 units).** Development of individual projects to investigate concepts of shelter. Exploration of traditional and contemporary forms, methods, and materials. Mr. Shapira

**293. Interior Space Design (2 to 8 units).** The 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.

Mr. Kester, Mr. Shapira

**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. Mr. Shapira

**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. Mr. Carter

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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.

**597. Preparation for Master's Comprehensive Examination or Ph.D. Qualifying Examination (2 to 8 units).** Prerequisite: consent of instructor. S/U grading.

**598. Research for and Preparation of Master's Thesis (2 to 8 units).** Prerequisite: consent of instructor. S/U grading.

**599. Research for and Preparation of Ph.D. Dissertation (2 to 8 units).** Prerequisite: consent of instructor. S/U grading.

## Related Courses in Another Department

**Classics** 251A. Seminar in Classical Archaeology: The Aegean Bronze Age

251B. Seminar in Classical Archaeology: Greco-Roman Architecture

251C. Seminar in Classical Archaeology: Greco-Roman Sculpture

251D. Seminar in Classical Archaeology: Greco-Roman Painting

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.

## Dance

205 Women's Gym, 825-3951

### Professors

Elsie Dunin, M.A.

Pia Gilbert

Carol Scothorn, M.A., *Chair*

Marion Scott

Doris Siegel

Allegra Snyder, M.A.

Emma Lewis Thomas, Ph.D.

Alma M. Hawkins, Ed.D., *Emeritus*

### Associate Professors

Erma Dosamantes-Alperson, Ph.D.

Judy Mitoma, M.A.

### Assistant Professor

Angelia Fisher, M.A.

### Lecturer

Suenobu Togi

### Visiting Lecturers

Gloria Bowen

Candi De Alaiza, Ph.D.

William De Young, M.F.A.

Judithe Gantz, M.A.

Martha Kalman, M.A.

Margalit Oved Marshall

Emilio Pulido-Huizar, B.A.C.

Melinda Williams, M.A.

Medha Yodh, M.S.

## Scope and Objectives

Bodily skill, artistry, and deep understanding are necessary for an intelligent and creative artist. Dancers at UCLA receive extensive movement experience in contemporary dance, ballet, improvisation, and ethnic forms through practical work in studios, workshops, and performances. The art of dance is explored in costume design, lighting and scenic design, music and sound, and video. The development and relevance of dance is studied through courses in dance history, ethnology, notation, therapy,

kinesiology, and education. Modern choreography is the basis of the UCLA program in dance.

UCLA offers the Bachelor of Arts degree in Dance combining professional training with the liberal study essential to the development of each dancer's own creative potential.

The graduate program awards the Master of Arts degree in Dance, designed for students preparing to continue professionally as choreographers, performers, designers, teachers, researchers, and therapists. The therapy program is approved by the American Dance Therapy Association.

## Bachelor of Arts Degree

The dance major offered in the College of Fine Arts leads to the Bachelor of Arts degree. Students who wish to confer with the departmental counselor regarding program planning and major requirements should see Wendy Urfrig in the department office.

### Preparation for the Major

*Required:* Twenty-six units of lower division coursework, including Dance 6F-6W-6S, 7F-7W-7S, 11A-11F, 20, 25A, 25B, 48 (must be taken twice), 70.

### The Major

*Required:* A total of 58 units of upper division coursework, including Dance 100A-100B-100C, 113A-113B-113C, C120, 123A, 123B, 132A-132B, 134A, 134B, 141, 144, 148, 149, and eight units selected from upper division dance electives.

Admission to the upper division major is determined by a screening and evaluation conducted during Spring Quarter of your sophomore year. All entering transfer students are auditioned for placement in technique and choreography classes.

## Master of Arts Degree

### Admission

A bachelor's 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 studio work. The department has its own application form (in addition to that used by Graduate Admissions); three letters of recommendation and an audition are also required.

The audition will look at your technical proficiency and creative potential, which is expected to be no lower than the level of the UCLA undergraduate junior. Special attention is given to the creative aspects of dance. Because the department recognizes the importance of diversity and specialization at the graduate

level, you will be evaluated according to your primary focus (i.e., performance-choreography, education, therapy, or ethnology).

Prospective students may write to the Department of Dance, 205 Women's Gym, University of California, Los Angeles, CA 90024, for departmental brochures which give additional information on the graduate program.

## Foreign Language Requirement

There is no foreign language requirement. If you specialize in dance ethnology, however, and will do fieldwork, it is recommended that, during your graduate study or before, you gain working knowledge of the language of the area in which you will do your research.

## Course Requirements

Nine courses (or more depending on your specialty) are required, distributed as follows: (1) Dance 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 classes taken to fulfill deficiencies nor technique and ethnic performance classes.

Eight units of 500-series courses (596A, 596R, 598) may be applied toward the total course requirement; four units may be applied toward the minimum graduate course requirement.

These requirements are to be partially fulfilled by one of the following patterns: (1) Dance 151, 211A through 211F (choreography/performance); (2) courses 211A-211B-211C, 251A-251B (dance education); (3) courses 280A-280B-280C, 280E (dance ethnology); (4) courses 260A-260B-260C, 261A-261B-261C, 262A-262B-262C, 460A-460B-460C, 596A, 596R (dance therapy).

The following upper division courses may be applied toward the M.A. degree: Dance 103, 114, 123C, 126, 142, 151, 152, 153, 160A, 181A, 181B, 181C, 181D, 182A, 183A, 184B, 187A, 190, 191, 197A-197B.

Other areas such as dance history, philosophy and criticism, dance kinesiology, dance production, dance and media, music for dance, and dance notation may be pursued on the advice of the Chair or an adviser after you have been in the graduate program for several quarters and have identified a unique interest and competence in one of these areas.

While an undergraduate course in abnormal psychology is required for the dance therapy specialization, other courses in psychology (developmental, personality, and group dynamics) are highly recommended. The program in dance therapy requires field experience or internship to provide an orientation to the hospital setting and experience as a movement therapist. The second year is designed as an intensive experience: two full days each

week, with an opportunity to work with different populations and to assume a broad range of responsibilities in a therapeutic setting.

While fieldwork is not a requirement for those specializing in the area of dance ethnology, it is strongly suggested as part of that program.

## Teaching Experience

Teaching experience is not a requirement for the degree. It is highly recommended, however, for those graduating with a focus in dance education.

## Thesis Plan

If you choose the thesis plan, you will prepare a report of the results of your original research or creative work. Before beginning work on the thesis, you must obtain approval of the subject and general plan from the graduate faculty committee. If the thesis plan is accepted, a thesis committee will be formed. Conditions for reexamination in case you fail the first presentation are based on the support of several faculty members.

## Comprehensive Examination Plan

You must declare your intention to take the comprehensive examination plan in your third or fourth quarter. The examination, administered by a committee of your choice selected from faculty in your specialization, Dance faculty outside your specialization, and faculty outside the department, consists of three written questions and an oral test and takes approximately three days to complete. Each committee member will grade each question pass, pass with honors, or fail. In order to pass, each question must be graded pass or better by two of the three committee members. If any questions are failed, you may retake the failed portion(s) once only.

## Lower Division Courses

**1A-1F. Fundamentals of Modern Dance (2 units each).** (Formerly numbered 10A-10B-10C and 11A-11B-11C.) Studio, three hours. Designed for nondance majors. Courses must be taken in sequence. Study of dance technique, improvisation, and choreography. Includes critical viewing, reading, and discussion of modern dance artists' historical/aesthetic styles.

**6F-6W-6S. Fundamentals of Ballet (2 units per year).** (Formerly numbered 30AF-30AW-30AS.) Laboratory, four hours. Prerequisite: dance major or consent of instructor. Students are admitted in Fall Quarter only. Study of ballet techniques and principles, including dance terminology. In Progress grading (credit to be given only on completion of course 6S).  
Ms. Bowen (F,W,Sp)

**7F-7W-7S. Fundamentals of Ballet (2 units per year).** (Formerly numbered 30BF-30BW-30BS.) Laboratory, four hours. Prerequisite: dance major or consent of instructor. Students are admitted in Fall Quarter only. Study of ballet techniques and principles, including dance terminology. In Progress grading (credit to be given only on completion of course 7S).  
Ms. Bowen (F,W,Sp)

**10. Introduction to Dance (2 units).** (Formerly numbered 50.) An introduction to the many and varied theoretical aspects of dance as a discipline.

Mrs. Snyder

**11A-11F. Modern Dance Technique and Choreography (2 units each).** (Formerly numbered 36A-36B-36C and 37A-37B-37C.) 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 an understanding of the creative process of structure and form in dance compositions.  
Ms. Howard, Ms. Kalman (F,W,Sp)

**20. Music Analysis for Dance (2 units).** (Formerly numbered 35.) Lecture, two hours; laboratory, one hour. Study of the elements of music, music structures, and their relationship to dance, with emphasis on rhythmic analysis, dance accompaniment, and teacher-accompanist roles.  
Mrs. Gilbert (F,Sp)

**25A. Beginning Labanotation (2 units).** (Formerly numbered 38A.) Lecture, two hours; laboratory, one hour. Introduction to writing dance/movement in Labanotation. Basic skills in reading dances from the notated score.  
Ms. Fisher, Mrs. Scothorn (F,W)

**25B. Intermediate Labanotation (2 units).** (Formerly numbered 38B.) Lecture, two hours; laboratory, one hour. Prerequisite: course 25A. Continued studies in Labanotation. Experiences in recording dance/movement and interpreting the notated score.  
Ms. Fisher, Mrs. Scothorn (W,Sp)

**40. Introduction to Dance Theater (2 units).** (Formerly numbered 52.) Lecture, two hours; laboratory, two hours. Prerequisite: course 11A or consent of instructor. Study of the creative elements of choreography, sound score, and design and how they interact with the practical elements of personnel, materials, and procedures in presenting dance theater.  
Mrs. Siegel (W)

**48. Laboratory in Dance Production (1 unit).** (Formerly numbered 92.) 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.  
(Sp)

**70. Survey of Dancing in Selected Cultures (2 units).** Studio, three hours. Introduction to dances and their movement characteristics in Western and non-Western cultures.  
Mrs. Dunin (F,Sp)

**71B. Dance of Indonesia (2 units).** (Formerly numbered 71A and 71H.) Studio, three hours. Dance experience is not required. Introduction to the technique and repertory of dance traditions (e.g., Java, Bali, Sunda).  
Ms. Mitoma (F,W,Sp)

**71C. Dance of Japan (2 units).** (Formerly numbered 71G.) Studio, three hours. Dance experience is not required. Technique and repertory from the court dance tradition (e.g., Gagaku).  
Mr. Togi (F,W,Sp)

**71D. Dance of India (2 units).** (Formerly numbered 71E.) Studio, three hours. Dance experience is not required. Introduction to dance in India, with emphasis on a particular tradition (e.g., Bharata Natyam).  
Ms. Yodh (F,W,Sp)

**71E. Dance of Korea (2 units).** (Formerly numbered 71Q.) Studio, three hours. Dance experience is not required. Technique and repertoire of a selected dance tradition (e.g., Korean classical and folk).  
(F,W,Sp)

**72B. Dance of Ghana (2 units).** (Formerly numbered 71B.) Studio, three hours. Dance experience is not required. Introduction to the technique and repertory of a selected region.  
(F,W,Sp)

**73B. Dance of Mexico (2 units).** (Formerly numbered 71J.) Studio, three hours. Dance experience is not required. Introduction to forms and styles in dances of several ethnographic regions. Emphasis on identifying dance characteristics through actual dancing.  
Mr. Pulido-Huizar (F,W,Sp)

**74B. Dance of Yugoslavia (2 units).** (Formerly numbered 71P.) Studio, three hours. Dance experience is not required. Introduction to forms and styles in dances of several ethnographic regions. Emphasis on identifying dance characteristics through actual dancing.  
Mrs. Dunin

**74C. Dance of Spain (2 units).** (Formerly numbered 71M.) Studio, three hours. Dance experience is not required. Technique and repertory of dances from selected ethnographic regions.

**76B. Dance of Israel (2 units).** (Formerly numbered 71F.) Studio, three hours. Dance experience is not required. Technique and repertory from selected ethnographic regions.

**79A-79Z. Dance of a Selected Culture (2 units each).** Studio, three hours. Introduction to forms and styles in dance of a selected culture area.

**80A-80B. Movement as Cultural Behavior (2 units each).** (Formerly numbered 46A-46B.) Studio, three hours. Prerequisite: ethnic arts major or consent of instructor. Studio/laboratory examination of the 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.  
Ms. Mitoma (W,Sp)

## Upper Division Courses

**100A-100B-100C. Modern Dance: Intermediate Technique and Choreography.** (Formerly numbered 150A-150B-150C.) 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 the stage space.  
Ms. Fisher, Mrs. Scothorn (F,W,Sp)

**101A-101B-101C. Intermediate Modern Dance Technique (2 units each).** (Formerly numbered 112A-112B-112C.) Lecture, two hours; laboratory, two hours. Technique levels II and III. Emphasis on increasing technical skill. Each course may be repeated once.  
Ms. Fisher, Ms. Kalman (F,W,Sp)

**102A-102B-102C. Advanced Modern Dance Technique (2 units each).** (Formerly numbered 114A-114B-114C.) Lecture, one hour; studio, five hours. Technique levels IV and V. Studies in advanced technique, with emphasis on performing skills. Each course may be repeated once.  
Mr. De Young (F,W,Sp)

**103. Improvisation in Dance (2 units).** (Formerly numbered 116.) Studio, four hours. Prerequisite: dance major or consent of instructor. Developing and aesthetic perspective through the use of imagery, sound, and other art. Concentration and projection.  
Ms. Kalman (W,Sp)

**106A-106B-106C. Intermediate Ballet (2 units each).** (Formerly numbered 131A-131B-131C.) Lecture, one hour; laboratory, three hours. Prerequisites: courses 7F-7W-7S or consent of instructor. Courses must be taken in sequence. Study of techniques and principles of classical ballet, including phrasing, combinations, and repertory.  
(F,W,Sp)

**107A-107B-107C. Advanced Ballet (2 units each).** (Formerly numbered 132A-132B-132C.) Lecture, two hours; laboratory, six hours. Prerequisite: course 106C. Advanced technique in classical ballet, with emphasis on performing skills. Each course may be repeated once.  
(F,W,Sp)

**113A-113B-113C. Advanced Modern Dance: Technique, Choreography, and Performance (2 units each).** (Formerly numbered 153A-153B-153C.) Lecture, three hours; laboratory, four hours. Prerequisite: course 100C. Advanced technique studies, with emphasis on developing performance qualities: dynamics, focus, projection, expressive range. Independent work in solo and group choreography culminating in a final performance project.  
Mr. De Young (F,W,Sp)

**114. Form and Structure in Choreography.** (Formerly numbered 155.) Lecture, one hour; laboratory, three hours. Prerequisite: dance major or consent of instructor. A study of the craft of choreography. Emphasis on breath movement, phrasing, ABA, theme and variations, rondo. Learning to discipline and shape the creative impulse into specific forms, with emphasis on staging.  
Ms. Scott (Sp)

**C120. Music as Dance Accompaniment.** (Formerly numbered C154.) 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 the dance performance. May be concurrently scheduled with course C220.

Mrs. Gilbert (F,W)

**123A. Anatomy for the Dancer.** (Formerly numbered 111A.) Prerequisite: course 11F or consent of instructor. A study of the human muscular-skeletal system as related to dance.

Ms. Gantz (F,W)

**123B. Applied Principles of Conditioning and Correctives for the Dancer.** (Formerly numbered 111B.) Prerequisite: course 123A. Study and application of the biological and physical principles of human movement as related to dance. Prevention and care of dance injuries.

Ms. Gantz (W,Sp)

**123C. Projects in Dance Kinesiology.** (Formerly numbered 111C.) Prerequisite: course 123B. In-depth study of selected topics introduced in courses 123A and 123B.

Ms. Gantz (Sp)

**125. Principles of Movement Analysis: Laban Analysis.** (Formerly numbered 138.) Lecture, two hours; laboratory, two hours. Prerequisite: dance major or consent of instructor. Basic principles of Laban analysis. Emphasis on experiential understanding of movement through the study of motion factors and elementary concepts of spatial dynamics. Focus on the qualitative area of movement to further comprehension of dance as a creative art form.

Ms. Gantz, Ms. Howard (Sp)

**126. Advanced Labanotation.** (Formerly numbered 159.) Lecture, two hours; laboratory, two hours. Prerequisite: course 25B. Skills in reading and writing complex movement; reconstruction and score preparation in modern, ballet, ethnic dance.

Mrs. Scothorn (Sp)

**132A-132B. Philosophical Bases and Trends in Dance (4 units, 2 units).** (Formerly numbered 158A-158B.) Course 132A is prerequisite to 132B. Critical analysis of dance as a creative experience and the role of professional and educational dance in our society. Study of selected approaches to current development in dance.

Mrs. Gilbert (W,Sp)

**134A. History of Dance in Western Culture, Origins to 1600.** (Formerly numbered 151A.) The development of dance styles in Western culture; function in society and relationship to contemporary artistic expression; ancient Egypt through European Renaissance.

Mrs. Thomas (F)

**134B. History of Dance in Western Culture, 1600 to the Present.** (Formerly numbered 151B.) Prerequisite: course 134A or consent of instructor. Survey of dance styles in European and American cultures from early baroque to the present.

Mrs. Thomas (W)

**141. Lighting Design for Dance Theater (2 units).** (Formerly numbered 152A.) Lecture, two 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.

Mrs. Siegel (F,Sp)

**142. Advanced Studies in Dance Theater Lighting (2 or 4 units).** (Formerly numbered 152C.) Lecture, four hours; laboratory, four or more hours. Prerequisite: course 141 or consent of instructor. Analysis of diverse dance theater lighting problems at an advanced level and individual development of creative solutions. May be taken for a maximum of four units.

Mrs. Siegel (W,Sp)

**144. Costume and Scenic Design Concepts for Dance Theater (2 units).** (Formerly numbered 152B.) Lecture, two hours; laboratory, two hours. Prerequisite: course 11F or consent of instructor. General study of costume history, selected historical styles, and introductory drawing as a conceptual basis for visual awareness in theatrical dance design. Designer-choreographer relationships are explored.

(F,Sp)

**148. Advanced Laboratory in Dance Production (1 unit).** (Formerly numbered 192.) 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.

(Sp)

**149. Dance Performance Practicum (1 unit).** (Formerly numbered 193.) Laboratory, four hours. Dancing in selected choreography in public performance. P/NP grading.

**151. Foundations of Dance Education.** (Formerly numbered 127.) 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. Includes supervised teaching practicum.

Ms. Fisher, Ms. Williams (F,W)

**152. Dance as Culture in Education.** (Formerly numbered 128.) 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.

Mrs. Dunin

**153. Creative Dance for Children.** (Formerly numbered 160.) 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.

Ms. Williams (Sp)

**160A. Movement Dynamics and Personality Growth (2 units).** (Formerly numbered 160A-160F.) Lecture, one hour; laboratory, three hours. Prerequisite: course 100C or consent of instructor. The course focuses on group processes and dynamics, both at the nonverbal (movement) and verbal modes of experience and works toward achieving a significant level of psychological insight by the student, to assist in functioning professionally as an effective dance/movement therapist.

**171B. Dance of Indonesia (2 units).** (Formerly numbered 171A and 171H.) 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.

Ms. Mitoma (F,W,Sp)

**171C. Dance of Japan (2 units).** (Formerly numbered 171G.) 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.

Mr. Togi (F,W,Sp)

**171D. Dance of India (2 units).** (Formerly numbered 171E.) 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.

Ms. Yodh

**171E. Dance of Korea (2 units).** (Formerly numbered 171Q.) 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.

(W,Sp)

**172B. Dance of Ghana (2 units).** (Formerly numbered 171B.) Studio, three hours. Prerequisite: course 72B. Technique and repertoire. Dance in relation to music, aesthetic principles, and cultural context. May be repeated once.

(F,W,Sp)

**173B. Dance of Mexico (2 units).** (Formerly numbered 171J.) Studio, three hours. Prerequisite: course 73B. Dance techniques of selected ethnographic regions. May be repeated once.

Mr. Pulido-Huizar (F,W,Sp)

**174B. Dance of Yugoslavia (2 units).** (Formerly numbered 171P.) Studio, three hours. Prerequisite: course 74B. Dance techniques of selected ethnographic regions. May be repeated once.

Mrs. Dunin (W,Sp)

**174C. Dance of Spain (2 units).** (Formerly numbered 171M.) 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.

**176B. Dance of Israel (2 units).** (Formerly numbered 171F.) Studio, three hours. Prerequisite: course 76B. Technique and repertoire from selected ethnographic regions.

**179A-179Z. Dance of a Selected Culture (2 units each).** Studio, three hours. Prerequisite: course 79 (in corresponding culture area). Develops the dance technique of a selected culture area. May be repeated for a maximum of four units.

**180A-180B. Introduction to Dance Ethnography.** (Formerly numbered 141A-141B.) A study of the physical, environmental, and cultural influences on ritual and social dance forms. Students learn basic observational and recording techniques, including beginning Labanotation.

Mrs. Dunin (W,Sp)

**181A. Dance Cultures of Asia.** (Formerly numbered 140B.) An introduction to the dance cultures of Asia. How the theories and practices of dance are influenced by historical and social factors and by ideological and aesthetic systems. Lectures are illustrated with demonstrations, films, and slides.

Ms. Mitoma (W)

**181B. Dance in Southeast Asia.** (Formerly numbered 144.) Prerequisite: course 181A or consent of instructor. A survey of selected ritual, social, and court dances of Indonesia, Cambodia, Thailand, and the Philippines. Social, historical, and aesthetic factors are considered. Lectures are illustrated with demonstrations, films, and slides.

Ms. Mitoma

**181C. Dance in East Asia.** (Formerly numbered 145.) Prerequisite: course 181A or consent of instructor. A survey of the dances of Japan, China, and Korea and the factors which have influenced their development and social function. Consideration of the relationship of dance to other art forms. Lectures are illustrated with demonstrations, films, and slides.

**181D. Dance in South Asia.** (Formerly numbered 143.) Prerequisite: course 181A or consent of instructor. A survey of dance forms in India and Sri Lanka. Factors influencing the development of dance, its social function, and its relationship to other art forms. Lectures are illustrated with demonstrations, films, and slides.

Ms. Yodh

**182A. Dance Cultures of Africa.** (Formerly numbered 140A.) An illustrated survey of dance in sub-Saharan cultures, the role of dance in society, historical background, and related folklore.

Mrs. Snyder (F)

**183A. Dance in Latin America.** (Formerly numbered 146.) Prerequisite: course 73B, 173B, or consent of instructor. An introduction to the dances of Latin America, factors influencing their development and social function, consideration of the relationship of dance to other art forms. Lectures are illustrated with demonstrations, films, and slides.

**184B. Dance in the Balkans.** (Formerly numbered 142.) Prerequisite: course 74B. An illustrated survey of dance, with attention to cultural and social contexts: Albania, Bulgaria, Greece, Romania, Yugoslavia.

Mrs. Dunin

**187A. Dance Cultures of Native American Indians.** (Formerly numbered 140C.) An illustrated survey of Native American Indian dance, the role of dance in society, historical background, and related folklore.

Mrs. Snyder (Sp)

**190. Advanced Dance Performance (2 units).** (Formerly numbered 190A-190B-190C.) Lecture, one hour; laboratory, three hours. The study and performance of major choreography. May be repeated twice.

(F,W,Sp)

**191. Repertory Dance Tour (2 to 4 units).** Prerequisite: dance major or consent of instructor. Creation and performance of dance concerts in the community, with special emphasis on the problems of the touring dance company with a variable repertoire.

Ms. Howard (F)

**197A-197B. Proseminar: Dance Perspectives (2 units each).** Prerequisite: upper division standing or consent of instructor. Consideration of the aesthetics evolving from the work of the great artists of our time.

**199. Special Studies in Dance (2 to 8 units).** Prerequisites: senior standing and consent of instructor.

## Graduate Courses

**211A-211F. Advanced Choreography.** (Formerly numbered 204A-204B-204C and 204D-204E-204F.) Lecture, two hours; laboratory, two hours. Prerequisite: course 113C or equivalent. Theoretical aspects of advanced choreography for the student who has reached the level of self-initiation of substantial creative works. The courses focus on refinement and realistic self-evaluation, as well as critical counsel by acknowledged choreographers.

Mrs. Scothorn, Ms. Scott (F,W,Sp)

**C220. Music as Dance Accompaniment.** (Formerly numbered C254.) Prerequisite: course 20 or consent of instructor. Piano and percussion improvisation for dance. Choreographer-composer relationships. History of music for the dance, with emphasis on contemporary trends. Music for the dance performance. May be concurrently scheduled with course C120. Graduate students must complete two additional assignments. May not be applied toward the M.A. degree requirements. Mrs. Gilbert

**221. Music for Dance.** (Formerly numbered 206.) Prerequisite: course C120. Theory of the aesthetic and functional relationship of music to dance.

Mrs. Gilbert (Sp)

**223. Principles of Dance Kinesiology.** (Formerly numbered 211A.) Prerequisite: consent of instructor. The scientific basis for movement for dance. A study of the anatomical, kinesiological, and physical principles and demands of dance. Ms. Gantz (F)

**225A-225B. Theories of Movement: Laban Analysis.** (Formerly numbered 238A-238B.) Lecture, two hours; laboratory, two hours. Theories of Laban movement analysis as a means for analyzing and describing human movement. Use of Laban movement analysis to increase movement observation skills and a theoretical understanding of the role of movement in dance, nonverbal behavior, and cross-cultural dance studies. Focus on complex movement patterns and timing.

Ms. Gantz, Ms. Howard (F,W)

**226. Advanced Studies in Notation (2 units).** (Formerly numbered 200.) Prerequisite: course 126. Selected problems in directing from the notated repertoire; principles of teaching, comparative notation systems, writing projects. Mrs. Scothorn

**230. Research Methods and Bibliography in Dance.** (Formerly numbered 202.) Survey of methods for scholarly analysis of dance materials using systems from the social sciences, physical sciences, and humanities. Mrs. Thomas (F,Sp)

**231A-231B. Philosophical Bases and Trends in Dance (4 units, 2 units).** (Formerly numbered 258A-258B.) Lecture, three hours. Prerequisite: course 100C. Critical analysis of dance as a creative experience and the role of professional and educational dance in our society. Research and extensive reading in contemporary philosophic literature. Study of present-day concepts and their relationship to other art forms and cultures. Evaluations of graduate students are based on extended reading list and term papers. May be applied toward the M.A. degree requirements. Mrs. Gilbert (W,Sp)

**232. Aesthetics of Dance.** (Formerly numbered 210.) Analysis of aesthetic concepts and critical methods used in writing about dance.

Mrs. Thomas

**234. Renaissance Dance: Analysis and Recreation.** (Formerly numbered 223.) Lecture, two hours; studio, two hours. Prerequisites: courses 134A and 134B, or consent of instructor. Analysis and recreation of the study of 15th- and 16th-century dance styles from Domenico da Piacenza through Cesare Negri. Mrs. Thomas

**235. The History of Ballet.** (Formerly numbered 221.) Prerequisites: courses 134A and 134B, or consent of instructor. Development of ballet from 19th-century Romanticism to the present. Stylistic differences in Italy, France, England, Denmark, and Russia are analyzed. Mrs. Thomas

**236. Dance in the 20th Century.** (Formerly numbered 220.) Prerequisites: courses 134A and 134B, or consent of instructor. Seminar in historical development of 20th-century dance. Mrs. Thomas

**240. Principles of Dance Theater.** (Formerly numbered 208.) Relationship of architecture, technology, and history of the theater to choreography. Directing theories for choreographers. Role of choreography in drama, opera, and other forms of theater.

Mrs. Scothorn (W)

**251A-251B. Advanced Studies in Dance Education.** (Formerly numbered 227A-227B.) **251A.** Prerequisite: consent of instructor. Survey of conceptual and methodological foundations of dance education. **251B.** Prerequisite: course 251A. Students design dance curriculum using theories of movement, creativity, and learning.

Ms. Fisher (F, 251B; Sp, 251A)

**260A-260B-260C. Group Dynamics and Process (2 units each).** Discussion, two hours; laboratory, two hours. Prerequisite: candidate in dance/movement therapy program. An experiential-didactic exploration of unfolding group dynamics and process within an ongoing movement therapy group.

Mrs. Dosamantes-Alperson

**261A-216B-261C. Dance Movement Therapy.** (Formerly numbered 251A-251B-251C.) Lecture, two hours; laboratory, two hours. Prerequisite: consent of instructor. **261A.** Theory and practice: historical overview of the field; introduction to basic theoretical concepts and their translation into practice. **261B.** Kinetic imagery; contribution of creative process and receptive knowing to therapy; unique functions served by movement and image modes explored theoretically and experientially. **261C.** Theory and method: assumptions and methods of current clinical approaches; students are expected to develop their own theoretical model. (F,W,Sp)

**262A-262B-262C. Seminar in Dance/Movement Therapy.** (Formerly numbered 252A-252B-252C.) Lecture, two hours; laboratory, two hours. Prerequisites: courses 261A-261B-261C. **262A.** Developmental Perspective. Information of life-span approach to human development and object relationships established from infancy through senescence; concepts applied to individual clients demonstrated by clinical specialists. **262B.** Individual Psychodynamics and Therapeutic Intervention. Relationships between individual psychodynamics and therapeutic objectives. **262C.** Systems Perspective. System theory concepts applied to dyads, groups, families, and cultures.

Mrs. Dosamantes-Alperson (F,W,Sp)

**280A-280E. Advanced Studies in Dance Ethnology.** (Formerly numbered 226A-226E.) Prerequisite: consent of instructor. Dance is viewed as an aspect of culture and human behavior. **280A.** Survey of literature. **280B.** Concepts of fieldwork. **280C.** Objectives and goals of the discipline in relation to anthropology and behavioral sciences. **280D.** Methodologies and training techniques for fieldwork. **280E.** Ethics and problems, field projects.

Mrs. Dunin, Mrs. Snyder (F,W,Sp)

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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.

Ms. Williams (F,W,Sp)

**451. Teaching Assistant Seminar (2 units).** (Formerly numbered 495.) Lecture, one hour; laboratory, three hours. Required of all Dance Department teaching assistants. The seminar is comprised of lectures, discussion, readings, and practice teaching. May be repeated once for credit. S/U grading.

Ms. Williams (F,W)

**452. Directed Field Study in Dance Education (2 to 8 units).** (Formerly numbered 496.) 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 the M.A. degree requirements. S/U grading. Ms. Williams (F,W,Sp)

**460A-460F. Clinical Practicum in Supervision (2 units each).** (Formerly numbered 497A-497F.) Lecture, one hour; discussion, two hours. Corequisites: courses 262A-262B-262C and 596R. Practicum dealing with student internship: movement observation, therapeutic goals, therapeutic process, and other clinical uses. S/U grading. (F,W,Sp)

**596A. Directed Individual Study or Research (2 to 8 units).**

**596R. Directed Study or Research in a Hospital or Clinic (2 to 8 units).** S/U grading.

**597. Preparation for M.A. Comprehensive Examination (No credit).**

**598. Research for and Preparation of M.A. Thesis (2 to 8 units).** S/U grading.

## Related Courses in Other Departments

**Anthropology 133R. Aesthetic Anthropology**

**Art 5A, 5B, 5C. Introduction to Art**

50. Ancient Art

51. Medieval Art

54. Modern Art

55. Africa, Oceania, and Native America

56. Asian Art

57. Renaissance and Baroque Art

110A, 110B, 110C. European Art

110D, 110E. Contemporary Art

161J. Video Imagery

**English 80. Major American Authors**

85. The American Novel

90. Shakespeare

100A. Introduction to Poetry

100B. Introduction to Drama

101C. Recent American Fiction

112. Children's Literature

133A-133B-133C. Creative Writing: Poetry

134A-134B-134C. Creative Writing: Short Story

135A-135B-135C. Creative Writing: Drama

167. The Drama, 1842 to the Present

**Humanities 1A, 1B, 1C. World Literature**

**Music 2A-2B. Introduction to the Literature of Music**

132A-132B. Development of Jazz

135A-135B-135C. History of the Opera

140A-140B-140C. Musical Cultures of the World

**Theater Arts 5A, 5B, 5C. History and Drama of the Theater**

20. Acting Fundamentals

102A, 102B. Selected Topics on the History of the European Theater

105. Main Currents in Theater

118A, 118B. Creative Dramatics

122. Makeup for the Stage



## Ethnic Arts (Interdepartmental)

205 Women's Gym, 825-3951

### Professors

Elsie Dunin, M.A. (*Dance*)  
Robert A. Georges, Ph.D. (*English*)  
Melvyn B. Helstien, Ph.D. (*Theater Arts*)  
William R. Hutchinson, Ph.D. (*Music*)  
Michael O. Jones, Ph.D. (*History, Folklore and Mythology*)  
Jacques Maquet, Ph.D. (*Anthropology*)  
James W. Porter, M.A. (*Music, Folklore and Mythology*)  
Allegra Snyder, M.A. (*Dance*)

### Associate Professors

Judy Mitoma, M.A. (*Dance*), *Coordinator*  
Philip L. Newman, Ph.D. (*Anthropology*)  
Arnold Rubin, Ph.D. (*Art, Design, and Art History*)

### Assistant Professors

Patricia M. Harter, Ph.D. (*Theater Arts*)  
Joseph F. Nagy, Ph.D. (*English, Folklore and Mythology*)  
Martin J. Powers, Ph.D. (*Art, Design, and Art History*)  
A. Jihad Racy, Ph.D. (*Music*)  
Beverly J. Robinson, Ph.D. (*Theater Arts, Folklore and Mythology*)  
Carol J. Sorgenfrei, Ph.D. (*Theater Arts*)

### Visiting Lecturer

Ronald Riddle, Ph.D. (*Music*)  
Romulus E. Zamora, M.F.A. (*Theater Arts*)

## Scope and Objectives

The interdisciplinary major in ethnic arts is available to students in both the College of Fine Arts and the College of Letters and Science. It facilitates the cultural and cross-cultural investigation of man's artistic expression by focusing on six disciplines: anthropology, art, dance, folklore and mythology, music, and theater arts.

The flexibility of the program allows students to focus on a particular medium of expressive behavior after having been exposed to general problems and perspectives in the study of art forms of peoples throughout the world. The program leads to a Bachelor of Arts degree in Ethnic Arts.

## Bachelor of Arts Degree

The major includes a core of seven courses (28 units) from anthropology, art, dance, folklore and mythology, music, and theater arts; a concentration consisting of 36 units in one of these six disciplines; a senior colloquium; and three upper division elective courses (12 units).

## Foreign Language Requirement

At least three quarters (one year) in one foreign language at the college level are required. All courses in foreign language, except foreign literature in English translation, may be applied toward this requirement.

If you plan to take a concentration in music, you are advised to select French, German, or Italian.

## General College Requirements

You must satisfy the general college requirements (other than foreign language) of your college (Fine Arts or Letters and Science) regardless of the department in which your concentration is located.

If you wish to confer with a counselor regarding program planning and major requirements, contact Wendy Urfrig in the program office.

## The Major

The following courses are required:

(1) A core of seven interdepartmental courses (28 units): Dance 70, 80A-80B, Folklore 101, Music 5A-5B-5C, Theater Arts 102E, Anthropology 5, and Art 55 or 56.

(2) A concentration of nine courses in one of the following areas (you must declare a concentration by the beginning of your junior year):

**Anthropology:** Courses 6, 133R, 135Q, 185; group A: any five upper division courses from 110 through 186B, including one area course from 171 through 177.

**Art:** Group A: one course from 50, 51, 54, 55, 56, 57; group B: eight courses from 102, 103A through 103E, 114A, 114B, 114C, 114D, C115A, C115B, C115C, C117A, C117B, C117C, 118A, 118B, 118C, 118D, C119A, C119B.

**Dance:** Courses 25B, 134A, 134B, 180A-180B; group A: two courses from 181A, 182A, 187A; group B: one course from 181B, 181C, 181D, 183A, 184B; group C: three two-unit courses from 171B through 176B (including one course each from Western and non-Western cultures; note that courses 71B through 76B are prerequisites for 171B through 176B).

**Folklore and Mythology:** Group A: one course from M111, 118, M180; group B: two courses from CM106, M123B, 124, M181, Classics 161, 168; group C: six courses from Folklore M112, M121, M122, M123A, M125, M126, M127, M128, M129, 130, 131, M149, M150, 190, German 134.

**Music:** Courses 11A-11B-11C, 12A, 14A-14B; group A: two courses from 140A, 140B, 140C; group B: three courses from 26A, 26B, 26C, 126A, 126B, 126C, 130, 131A, 131B, 135A, 135B, 135C, 138, 139, 141, 142A, 142B, 143A, 143B, 144, 145, 146A, 146B, 146C, 147A,

147B, 148, 149, 151A, 151B, 152, 153A, 153B, 153C, M154A, M154B, 157, 158, M180, M181, C190A, C190B, and 140A, 140B, 140C (if not previously taken); group C: six one-unit performance courses (each must be repeated for a minimum of two quarters and a maximum of three quarters, totaling six courses).

**Theater Arts:** Group A: four courses from 5A, 5B, 5C, 102A, 102B, 103A, 103B, 104D, 104E, 104F, 106C, 110A, C117, 119A, Classics 142, English 90, M104, 167, Scandinavian C144, C145, Humanities C111; group B: five courses from Theater Arts 20, 118A, 118B, 140A, 140B, 141A, 141B, 142A, 142B, 170.

(3) Ethnic Arts 190A-190B.

(4) Three elective courses which may be selected from the list below (other courses might also be appropriate). In order to meet degree requirements, the electives must be related to the major and approved by the concentration adviser. The three courses selected to meet this requirement must be upper division courses from three areas outside the area of concentration.

## Upper Division Courses

**190A-190B. Senior Colloquium.** Limited to senior ethnic arts majors. Studies of a comparative and integrative nature in the ethnic arts.

## Upper Division Electives

**Anthropology** 118A, 118B. Museum Studies  
133R. Aesthetic Anthropology  
135Q. The Individual in Culture  
137. Ethnography on Film  
154. Principles of Social Structure  
185. History of Social Anthropology  
**Art** 101A, 101B, 101C. Egyptian Art and Archaeology  
102. Art of the Ancient Near East  
103A. Greek Art  
103B. Hellenistic Art  
103C. Roman Art  
103D. Etruscan Art  
103E. Late Roman Art  
104A. Western Islamic Art  
104B. Eastern Islamic Art  
C104C. Problems in Islamic Art  
104B-104C-104D. Architecture and the Minor Arts of Islam in the Middle Ages  
114A. The Early Art of India  
114B. Chinese Art  
114C. Japanese Art  
114D. The Later Art of India  
C115A. Advanced Indian Art  
C115B. Advanced Chinese Art  
C115C. Advanced Japanese Art  
C117A, C117B, C117C. Advanced Studies in Pre-Columbian Art  
118A. The Arts of Oceania  
118B. The Arts of Pre-Columbian America  
118C. The Arts of Sub-Saharan Africa  
118D. The Arts of Native North America  
C119A. Advanced Studies in African Art: Western Africa  
C119B. Advanced Studies in African Art: Central Africa

**Classics** 161. Introduction to Classical Mythology  
 168. Introduction to Comparative Mythology  
**Dance** 123A. Anatomy for the Dancer  
 123B. Applied Principles of Conditioning and Correctives for the Dancer  
 123C. Projects in Dance Kinesiology  
 126. Advanced Labanotation  
 132A-132B. Philosophical Bases and Trends in Dance  
 134A. History of Dance in Western Culture, Origins to 1600  
 134B. History of Dance in Western Culture, 1600 to the Present  
 152. Dance as Culture in Education  
 171B. Dance of Indonesia  
 171D. Dance of India  
 172B. Dance of Ghana  
 173B. Dance of Mexico  
 174B. Dance of Yugoslavia  
 174C. Dance of Spain  
 176B. Dance of Israel (courses 71B through 76B are prerequisites for 171B through 176B)  
 181A. Dance Cultures of Asia  
 181B. Dance in Southeast Asia  
 181C. Dance in East Asia  
 181D. Dance in South Asia  
 182A. Dance Cultures of Africa  
 183A. Dance in Latin America  
 184B. Dance in the Balkans  
 187A. Dance Cultures of Native American Indians  
**East Asian Languages and Cultures** 135. Buddhist Themes in Asian Literature  
 140A-140B-140C. Chinese Literature in Translation  
 141A-141B. Japanese Literature in Translation  
 170A-170B. Archaeology in Early and Modern China  
 172. Introduction to Buddhism  
 173. Chinese Buddhism  
 174. Japanese Buddhism  
 183. Introduction to Chinese Thought  
 184. Introduction to Japanese Thought  
 189. Chinese Brush Painting  
**English** M104. Afro-American Literature  
**Folklore and Mythology** CM106. Anglo-American Folk Song  
 108. Afro-American Folklore and Culture  
 M111. The Literature of Myth and Oral Tradition  
 M112. Survey of Medieval Celtic Literature  
 118. Folk Art and Technology  
 M121. British Folklore and Mythology  
 M122. Celtic Mythology  
 M123A. Finnish Folklore and Mythology  
 M123B. Finnish Folk Song and Ballad  
 124. Finnish Folk Art and Technology  
 M125. Folklore and Mythology of the Lapps  
 M126. Baltic and Slavic Folklore and Mythology  
 M127. Celtic Folklore  
 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  
 M149. Folk Literature of the Hispanic World  
 M150. Russian Folk Literature  
 M154A-M154B. The Afro-American Musical Heritage  
 M180. Analytical Approaches to Folk Music  
 M181. Folk Music of Western Europe  
 190. Selected Topics in Folklore and Mythology Studies

199. Special Studies in Folklore  
**German (Germanic Languages)** 134. German Folklore  
**Music** 108. Acoustics  
 130. Music of the United States  
 131A-131B. Music of Hispanic America  
 132A-132B. Development of Jazz  
 133. Bach  
 134. Beethoven  
 135A-135B-135C. History of the Opera  
 137A-137B. Psychology of Music  
 138. Aesthetics of Music  
 139. History and Literature of Church Music  
 140A-140B-140C. Musical Cultures of the World  
 141. Survey of Music in Japan  
 142A-142B. Folk Music of Eastern Europe and the Mediterranean  
 143A-143B. Music of Africa  
 144. American Popular Music  
 145. History of Chinese Opera  
 146A-146B-146C. Studies in Chinese Instrumental Music  
 147A-147B. Music of China  
 148. Folk Music of South Asia  
 149. The Anthropology of Music  
 152. Survey of Music in India  
 153A-153B-153C. Music of the American Indians  
 M154A-M154B. The Afro-American Musical Heritage  
 157. Music of Brazil  
 158. New Orleans Jazz  
 M180. Analytical Approaches to Folk Music  
 M181. Folk Music of Western Europe  
 187. Problems in Musical Aesthetics  
**Theater Arts** 104D, 104E, 104F. History of the American Theater  
 106C. History of African, Asian, and Latin American Film  
 110A. History of Broadcasting  
 C117. The Puppet Theater  
 118A. Creative Dramatics  
 119A. Theater for the Child Audience: Theory and Criticism  
 119B. Theater for the Child Audience: Performance  
 121. Acting Workshop  
 122. Makeup for the Stage  
 140A. Scenic Techniques for the Stage  
 140B. Advanced Scenery for the Stage  
 141A. Lighting Techniques for the Stage  
 141B. Advanced Lighting for the Stage  
 142A. Theater Costuming Techniques  
 142B. Advanced Costuming for the Stage  
 143. Scenic Design for the Theater  
 144A. Theater Sound Techniques  
 144B. Advanced Theater Sound  
 C146. Scene Painting Techniques  
 149A. Basic Drafting Techniques for the Stage  
 160. Fundamentals of Play Direction  
 C190B. The Role of Management in the Educational and Community Theater

## Music

2539 Schoenberg Hall Annex,  
 825-4761

### Professors

Alden Ashforth, Ph.D.  
 Elaine R. Barkin, Ph.D.  
 Murray C. Bradshaw, Ph.D.  
 Malcolm S. Cole, Ph.D.  
 Frank A. D'Accone, Ph.D.  
 Paul E. Des Marais, M.A.  
 Marie Louise Gollner, Ph.D.  
 Frederick F. Hammond, Ph.D.  
 Thomas F. Harmon, Ph.D., *Chair*  
 Richard A. Hudson, Ph.D.  
 William R. Hutchinson, Ph.D.  
 Nazir A. Jairazbhoy, Ph.D.  
 Henri Lazarof, M.F.A.  
 David Morton, Ph.D.  
 James W. Porter, M.A.  
 Paul V. Reale, Ph.D.  
 Gilbert Reaney, M.A.  
 Abraham A. Schwadron, Mus. A.D.  
 Robert M. Stevenson, Ph.D.  
 Roy E. Travis, M.A.  
 D. K. Wilgus, Ph.D. (*Anglo-American Folksong*)

### Emeritus Professors

Peter C. Crossley-Holland, M.A.  
 Maurice Gerow, Ph.D.  
 Edwin H. Hanley, Ph.D.  
 Mantle L. Hood, Ph.D.  
 Boris A. Kremenliev, Ph.D.  
 W. Thomas Marrocco, Ph.D.  
 Robert U. Nelson, Ph.D.  
 H. Jan Popper, Ph.D.  
 Robert L. Tusler, Ph.D.

### Associate Professors

Charlotte A. Heth, Ph.D.  
 James E. Westbrook, D.M.A.  
 Robert S. Winter, Ph.D.

### Assistant Professors

Sue Carole De Vale, Ph.D.  
 Jacqueline C. DjeDje, Ph.D.  
 Warren Pinckney, Ph.D.  
 A. Jihad Racy, Ph.D.

### Lecturers

Gary G. Gray, M.M.  
 John L. Hall, M.M.  
 Johana Harris  
 William Hatcher, M.M.  
 Gordon Henderson, M.M.E.  
 Maureen D. Hooper, Ed.D.  
 Bess Karp, M.A.  
 Samuel Krachmalnick, *Senior*  
 Tsun Y. Lui  
 Peggy Ann Sheffield, M.M.  
 Sheridan W. Stokes  
 Suenobu Togi  
 Aube Tzerko, B.M., *Senior*  
 Donn E. Weiss, M.M., *Senior*

### Adjunct Assistant Professor

Mario Carta

## Motion Picture/ Television

See Theater Arts

### Visiting Lecturers

Gerald E. Anderson, M.S.  
 Salome R. Arkatov, M.A.  
 Roger Bourland, Ph.D.  
 Lon Bussell, B.M.  
 Marie Gibson, B.A.  
 Robyn Graham, B.M.  
 Mario Guarneri, M.S.  
 John A. Guarneri  
 Sybil D. Hast, M.A.  
 Nina Hinson, M.M.  
 John T. Johnson, B.M.  
 Yukiko Kamei  
 Myra Kestenbaum  
 Kobla Ladzekpo, B.F.A.  
 Danny Lee  
 James R. Low, B.M.  
 Shirley L. Marcus, B.M.  
 Kenneth Munday, Cert. of Fine Arts  
 Lou Anne Neill, M.A.  
 Theodore Norman  
 Nils Oliver, M.M.  
 Mitchell T. Peters, M.M.  
 David Raksin, B.M.  
 Mark Richman, M.M.  
 Donald J. Staples, B.A.  
 Alexander Treger  
 Pamela White, Ph.D.  
 Peter Yates, M.F.A.  
 Ikuko Yuge  
 Paul Zibits, M.M.

## Scope and Objectives

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 a 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, ethnomusicology, historical musicology, music education, and systematic musicology; specialized studies leading to the degree of Master of Fine Arts (performance practices) are offered in all classical solo instruments, voice, opera, 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.

Aptitude and achievement tests are required for enrollment in Music 11A, 12A, and 14A. These examinations are administered during registration week only; dates are published in the *Schedule of Classes*. Students planning to

complete a major in music, whether or not they have taken courses elsewhere, are required to pass a piano skills test (those without keyboard background may take courses 4A-4B-4C concurrently with 11A-11B-11C). The test must be passed by the end of course 11C or the first year as a music major, whichever comes first. Students with exceptional ability and achievement are placed into courses 11A-11F, 12A-12B, and/or 14A through 14D. Further information may be obtained from the Music Department Student Services Office, 2539 Schoenberg Hall Annex.

### General Requirements

All music majors must enroll in one performance organization (Music 90A-90N, 91A-91Z) each quarter in residence and must participate in a minimum of two different organizations over the course of their stay at UCLA, one of which must be from courses 90A-90H or 91A-91Z.

### Preparation for the Major

*Required:* Music 11A-11F, 12A-12B, 14A-14C, 14D, 26A-26B-26C, two courses from 60A-65, and one college year of French, German, Italian, or Spanish or at least one course at level three (you may use this to fulfill the college language requirement). If you plan to specialize in history and literature or systematic musicology, you are encouraged to take six quarters (or the equivalent) of German.

### The Major

*Required:* A minimum of ten courses in upper division, including Music 106A, 126A-126B-126C, five courses selected from one of the specializations listed below, and one free elective course for all areas except music education.

(1) *Composition and Theory:* Music 106B-106C, 107A-107B-107C. You are encouraged to select your free elective course from 101, 103A, 103B, 104A, 104B, 108, 109A, 109B, 109C, 110A, 110B, 111A, 111B, 140A through 149, 156, C176, 199. You must have an original work completed and ready for rehearsal and performance on campus during your senior year.

(2) *History and Literature:* One course from Music C127A, C127B, C127C, one course from C127D, C127E, C127F, one course from 140A, 140B, 140C, and two elective courses from 104A, 104B, 108, C127A through C127F, 130, 131A, 131B, 133, 134, 135A, 135B, 135C, 151A, 151B, 156, 157, C176, 187, 188A through 188F, 199 (four units only).

(3) *Ethnomusicology:* Music 140A-140B-140C and two courses from 108, C127A through C127F, 131A, 131B, 132A, 132B, 141, 142A, 142B, 143A, 143B, 145 through 149, 152, 153A, 153B, 153C, 157, 158, C190A, C190B, 199.

(4) *Performance:* Twelve units in performance instruction courses 160A-165 (including junior and senior recital requirements), four units of chamber ensembles (Music 175), and four units of elective courses from 101, 106B, 106C, 108, 110A, 110B, 111A, 111B, 112A, 112B, C127A through C127F, 130 through 135, 139, 140A, 140B, 140C, 151A, 151B, 187, 199.

(5) *Music Education:* Music 100A-100B-100C, 110A, 111A, 193, 195, eight units from 115A through 115E, and two units of elective courses selected under advisement from 110B, 111B, 112A, 112B, 140A, 140B, 140C, C185, 187, 199. If you are considering a music education specialization, you are encouraged to meet with a music education adviser during your freshman year.

(6) *Systematic Musicology:* Five courses from Music 103A, 103B, 108, 137B, 140A, 140B, 140C, 149, 184, 187, 199, Anthropology 133R (you may apply only one course from the Music 140A-140B-140C series).

## Graduate Study

### Admission

Application for admission/fellowship  
 is due ..... December 30

Supplementary application  
 materials are due ..... March 1

Assessment examination ..... early March

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.

Applicants for the M.A. and M.F.A. must have completed a Bachelor of Arts degree, or the equivalent, in Music or other fields of study, provided they 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).

Those applying for the Ph.D. must have completed a Master of Arts degree in Music (or the equivalent). The degree normally will have been taken in the same field of concentration as the proposed doctorate. If you wish to obtain a doctorate in a field other than that of the M.A., additional coursework, as prescribed by the department, must be completed.

Applicants for all degrees (M.A., M.F.A., and Ph.D.) are also required to (1) take a departmental assessment examination (details will automatically be sent after the application has been received); (2) submit a letter describing their background of study and stating their reasons for wishing to pursue graduate studies in

music; (3) submit three letters of recommendation from former instructors and/or professionals with whom they have worked; and (4) submit written examples of their work. For all branches of musicology and music education, a paper on an appropriate subject should be submitted; for composition, musical scores; for M.F.A. applicants, a repertoire list and sample concert or recital programs. Ph.D. applicants should submit the M.A. thesis or composition, if possible. M.F.A. applicants will also be required to demonstrate by audition their general musical proficiency in their area of specialization. No application can be considered until the examination has been taken and all of the above materials have been received.

## Major Fields

The Music Department offers the degrees of Master of Arts and Doctor of Philosophy in the fields of historical musicology, ethnomusicology, systematic musicology, composition and music education, and Master of Fine Arts (performance practices) in all classical solo instruments, voice, opera, and conducting.

## Teaching Credentials

You may earn credentials for teaching music and other subjects in California elementary and secondary schools in conjunction with the Graduate School of Education; completion of the teacher credential program in the Teacher Education Laboratory is required. Interested applicants should consult the Graduate School of Education (201 Moore Hall) and the faculty adviser in music education for information.

## Master of Arts Degree

### Foreign Language Requirement

Reading knowledge of German or French is required in ethnomusicology and systematic musicology; of French, German, or Italian in composition; of German, French, Italian, or Spanish in music education; and of German and a choice of French, Italian, or Latin in historical musicology. If you lack this proficiency when you enter the program, you must begin language study during the first year of residence.

### Course Requirements

You are required to complete a minimum of nine courses, five of which must be at the 200 level. Only four units of Music 596A, 596B, or 596C and four units of course 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 103A, 103B, 104A, 104B, 106B\*, 106C\*, 107A\*, 107B\*, 107C\*, 108, 109A, 109B, 109C, 110A†, 110B, 111A†, 111B, 112A, 112B,

118A, 118B, 119A, 119B, 119C, C127A through C127F, 140A\*\*, 140B\*\*, 140C\*\*, 141, 142A, 142B, 143A, 143B, 145, 146A, 146B, 146C, 147A, 147B, 148, 149, 151A, 151B, 152, 153A, 153B, 153C, 156, 157, 175, C176, M180, M181, 184, C185, 187. A maximum of four units of chamber ensembles (course 175) may be applied toward the degree. Course 598 serves to guide the preparation of the thesis and should normally be taken during the last quarter of residence.

\*Does not apply for students whose emphasis is composition.  
†Does not apply for students whose emphasis is music education.

\*\*Does not apply for students whose emphasis is ethnomusicology.

Course requirements for each field are as follows:

**Historical Musicology:** Music 200A, 201A-201B-201C, either 210 or 211 (students planning to enter the Ph.D. program are strongly advised to take both courses 210 and 211 in the first year of residence), 250A or 250B, two quarters of 260A through 260F, and one elective on the recommendation of the graduate adviser.

**Systematic Musicology:** Music 200A, 200B, three quarters of 272, one course from 255, 269, 273, or 275, and three electives on the recommendation of the graduate adviser.

**Ethnomusicology:** Music 200A, 200B, C290A-C290B, and five electives on the recommendation of the graduate adviser, two of which must be 200-level courses.

**Composition:** Music 200A, one course from 251A through 251D, 252A, 252B, and 252C in sequence (with the option of substituting course 596A for 252C), 266A or 266B, and three electives on the recommendation of the graduate adviser. In addition to the thesis, you are expected to produce other works involving both instrumental and vocal music, both solo and ensemble. You are also responsible for the campus presentation of one original work during each year of residency.

**Music Education:** You may choose either the thesis or comprehensive examination plan. Within each plan you must select a course of study that covers a special field of interest — choral, instrumental, or general topics — as listed below. For the thesis plan, Music 200A, 200B, C225, three courses from 118A, 118B, 119A, 119B, 270A through 270G, and three elective courses from one of the special fields below are required. For the comprehensive examination plan, Music 200A, C225, four courses from 118A, 118B, 119A, 119B, 270A through 270G, and three elective courses from one of the special fields below are required.

Course requirements for the special fields are as follows: **choral:** Music 119A-119B, 270E, and elective courses selected from 112B, 135A, 135B, 135C, 137B, 174A through 174D — four units only, 187, C227A through C227F, 261A through 261F, 596A, 596B, 596C, 598;

**instrumental:** Music 118A-118B, 270F, and elective courses selected from 106B, 106C, 108, 112A, 137B, 175 — four units only, 187, C227A through C227F, 261A through 261F, 596A, 596B, 596C, 598; and **general topics:** courses selected under advisement from Music 270A through 270F and elective courses selected from 137B, 140A, 140B, 140C, 175 — four units only, 187, C227A through C227F, 596A, 596B, 596C, 598.

## Thesis Plan

All M.A. students must use the thesis plan, except those specializing in music education who may follow either the thesis or comprehensive examination plan.

In all areas except composition, the thesis will be an extended essay. In composition, the thesis will be a work proposed by the student and approved by the composers' council.

The thesis topic is first approved by the area council; the topic and the composition of the master's committee are then taken up by the graduate committee.

## Comprehensive Examination Plan

You may use the comprehensive examination plan in lieu of the thesis plan only if you are specializing in music education and are not going on to the Ph.D. The plan has three components: (1) the realization in performance of a creative project appropriate to elementary, secondary, or higher education (e.g., choral or instrumental ensemble performance, original curricular design, original compositions or transcriptions); (2) a paper equivalent to a graduate seminar paper, including research, description of procedures, and analysis of the selected project; and (3) a final conference and evaluation.

## Final Examination

The final examination is oral and includes discussion of both the thesis and related matters. This examination does not apply to music education students electing the comprehensive examination plan.

## Master of Fine Arts Degree

### Foreign Language Requirement

Reading knowledge of French, German, or Italian is required. Candidates in the opera specialty must also be fluent in speaking one of these languages. The language requirement should be satisfied by the end of the first year of residence.

All M.F.A. students will be required to pass a departmental terminology examination covering standard musical performance terminology (expression, dynamics, interpretation, performance practices, instrumentation, style, tempo) in French, German, and Italian. The terminology requirement should be satisfied by the end of the second year of residence.

## Course Requirements

You 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, 596B, or 596C and eight units of course 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.

Course requirements are as follows: Music 200A, three quarters of 261A through 261F, six quarters of 400-level performance instruction, two quarters (eight units) of 598, and six elective courses. Conducting students will declare either a choral or instrumental specialization. Six quarters of course 475 will be required in the area of specialization (i.e., choral or instrumental) and at least two quarters in the other specialization. (On a two-year program, the ratio would be four to one.) Recommended electives include courses 108, 140A, 140B, 140C, 175, 187, 596A, 596B, 596C, and additional courses from the 200 and 400 series. A maximum of four units of chamber ensembles (course 175) may be applied toward the minimum 18 courses. Course 598 serves to guide the preparation of the final project and should normally be taken during the last two quarters of residence.

With the exception of the first quarter in residence, you must participate in a public performance of a soloistic nature each quarter for the first two years. One of the required performances each year must be a complete solo recital on campus (preferably a noon concert) with a faculty committee in attendance to evaluate the performance. Conducting students will present a program, or a substantial portion thereof, approved by the conducting faculty, either on or off campus.

The other performances (either on or off campus) must simply feature the student in a soloistic capacity (joint recital, soloing with a performance organization, accompanying, etc.) and may be only a portion of the program. Conducting students will present a minimum of one work, or a substantial movement of a longer work, in a public concert.

The final project is to be completed during your last year of residence. A solo recital and appropriate scholarly paper will be required in all areas. In addition, a major operatic performance is required in the area of opera. Conducting students will 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 will be concerned with performance problems which can be elucidated through research and analysis. The final version of the scholarly paper, with the accompanying recital program, must be submitted to the department in the format of a thesis.

The terminology examination, language requirement, and a majority of the coursework must be completed before you submit 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 by the Fall Quarter of your last year of residence.

## Ph.D. Degree

### Admission

See "Admission" under Graduate Study above. In addition, applicants for the Ph.D. in music education must have two years teaching experience at the elementary or secondary level to be considered for admission.

### Foreign Language Requirement

Reading knowledge of French and German is required in systematic musicology, ethnomusicology, and music education, while reading knowledge of French, German, and a choice of Italian, Latin, or another language approved by the area council is required in historical musicology. In the field of composition, two languages are required, one of which must be German or French; the other may be selected from German, French, Latin, Italian, or Russian.

### Course Requirements

You may petition to your area council, on the advice of your graduate adviser, for exemption from specific requirements on the basis of equivalent work done at the M.A. level.

Course requirements for each field of study are listed below. In each area, you may complete the residence requirement by electing courses (on consent of the graduate adviser) from the 200- or 100-level courses listed under the course requirements for the M.A.

*Historical Musicology:* Music 200A, 201A-201B-201C, 210, 211, 250A or 250B, and five quarters of 260A through 260F. If you received the M.A. in historical musicology from UCLA, you will normally take a minimum of three quarters of courses 260A through 260F in the Ph.D. program.

*Systematic Musicology:* Music 200A, 200B, five quarters of 272, and one quarter of 255, 269, 273, or 275. If you received the M.A. in systematic musicology from UCLA, you will normally take a minimum of two quarters of course 272 in the Ph.D. program.

*Ethnomusicology:* Music 200A, 200B, C290A-C290B, and six seminars, at least three of which must be course 280 (the others are to be selected from courses 248, 253, 254A, 254B, 255). You are also expected to complete two area studies courses. Parts of these requirements may be completed at the M.A. level (course 280 may not be applied toward the Ph.D. if taken at the M.A. level).

*Composition:* Music 200A, one course from 251A through 251D, six quarters of 252A, 252B, 252C in sequence (with the option of substituting course 596A for 252C), and 266A or 266B. If you received the M.A. in composition from UCLA, you will normally take a minimum of three quarters of course 252 in the Ph.D. program. If you received the M.A. in composition elsewhere, you will normally take six quarters of courses 252A, 252B, 252C in sequence, with the option of substituting course 596A for either or both 252Cs. In addition to the dissertation, you are expected to produce other works involving both instrumental and vocal music, both solo and ensemble. You are also responsible for the campus presentation of one original work during each year of residency.

*Music Education:* Music 200A, 200B, C225, and five quarters of 270A through 270F. If you received the M.A. in music education from UCLA, you will normally take a minimum of three quarters of courses 270A through 270F in the Ph.D. program. Under advisement, two of the three quarters of 270A through 270F may be completed under special studies (course 596C). If you wish to pursue the Ph.D. in music education with a minor in ethnomusicology, you will be required to take courses 200A, 200B, C225, C290A-C290B, three quarters of 270A through 270F, and two courses from 141 through 143B, 145 through 149, 152, 153A, 153B, 153C, 281A through 288. Electives are to be selected from courses 140A, 140B, 140C, M180, M181, 187, 254A, 254B, 255, 280.

## Qualifying Examinations

When you and your guidance committee believe you are ready to take the qualifying examinations, you 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 will act 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. Contact the Student Services Office for details on the written examinations.

When you successfully complete the written examinations, a departmental oral qualifying examination will be scheduled. After passing the oral examination, you may submit your dissertation proposal and request for a doctoral committee; this committee will administer the University Oral Qualifying Examination.

In all fields but composition, the dissertation will be an extended monograph. In composition, the dissertation will consist of (1) an extended composition accompanied by a short description of the style and techniques of the work and (2) an analytical monograph dealing with some aspect of 20th-century music.

## Final Oral Examination

A final oral examination is required by the department.

## Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Lower Division Courses

**1A-1B. Fundamentals of Music.** Lecture, three hours; laboratory, two hours. **1A.** Sight-singing, ear training, reading music, and harmonization of simple melodies. **1B.** Prerequisite: course 1A or consent of instructor. Diatonic harmony; four-part writing, including inversions, sevenths, secondary dominants, and modulation; organization of melody and accompaniment; simple analysis; advanced sight-singing and ear training. Ms. Karp and the Staff

**2A-2B. Introduction to the Literature of Music.** Lecture, four hours; laboratory, one hour. Course 2A is not prerequisite to 2B. Designed for nonmusic majors. **2A** surveys the technical and formal principles of music literature through the mid-18th century. **2B** surveys music literature from the mid-18th century to the present.

**4A-4B-4C. Basic Musicianship (2 units each).** Laboratory, three hours. Class instruction in elementary ear training and keyboard skills. Miss Sheffield

**5A-5B-5C. Fundamentals of Sound and Music of the World (2 units each).** Prerequisite: consent of instructor. The 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. Mr. Hutchinson and the Staff

**6GA-6GB. Graduate Review of Music History and Analysis (2 units each).** Prerequisite: graduate standing. Designed to help entering graduate students remedy entrance deficiencies. Clearance of deficiencies is by examination. May be repeated for credit.

**8G. Graduate Piano Sight-Reading (2 units).** Prerequisite: graduate standing. Designed to help entering graduate students remedy entrance deficiencies. Clearance of deficiencies is by examination. May be repeated. Miss Sheffield

**10. Computer Assisted Sight-Singing Laboratory (2 units).** Lecture, two hours; laboratory, one hour. Prerequisites: course 1A or equivalent and consent of instructor. An individualized, self-instructional approach for the development of sight-singing skills through the use of a music computer, keyboard instrument, and linear program learning.

**11A-11F. Musicianship (2 units each).** Laboratory, four hours. Prerequisites: aptitude, achievement, and piano skills tests. Series (A-F) must be taken in sequence. **11A.** Sight-singing of diatonic melodies, dictation of intervals and diatonic melodies, keyboard score reading with two lines in various clefs, and elementary rhythmic exercises. **11B.** Sight-singing of melodies with simple modulations, diatonic harmonic dictation of triads and seventh chords, keyboard playing of cadences, score reading up to three parts, and rhythmic exercises. **11C.** Sight-singing of more difficult melodies, two-part dictation, elementary figured bass playing, keyboard score reading up to four parts, and rhythmic exercises. **11D.** Sight-singing, two-part dictation, figured bass playing, score reading of chamber scores, and rhythmic exercises. **11E.** Sight-singing, two-part dictation, figured bass playing, score reading of passages with transposing instruments, and rhythmic exercises. **11F.** Sight-singing of chromatic melodies, two-part dictation, chromatic figured bass playing, keyboard reading of orchestral scores, and rhythmic exercises.

**12A-12B. Counterpoint (2 units each).** Lecture, four hours. **12A.** Prerequisites: aptitude, achievement, and piano skills tests. 16th-century modal counterpoint in two parts, including the writing of motets. **12B.** Prerequisites: courses 12A (may be taken concurrently) and 14B. 18th-century tonal counterpoint in two parts, including the writing of inventions.

**14A-14B-14C. Common Practice Harmony (2 units each).** Lecture, four hours. **14A.** Prerequisites: aptitude, achievement, and piano skills tests. Common practice harmony using triads, inversions, dominants and secondary dominants, and simple modulations. **14B.** Prerequisite: course 14A. Common practice harmony through extended dominants and diminished sevenths in all inversions, along with modulations to all diatonic keys. **14C.** Prerequisites: courses 12A-12B and 14B. Chromatic harmony, including augmented sixth chords, Neapolitan sixths, and altered chords, along with complex modulations.

**14D. Modern Harmony (2 units).** Lecture, four hours. Prerequisite: course 14C. 20th-century practices, including nonfunctional harmony, pan-diatonism, polytonality, and serialism.

**26A-26B-26C. History and Analysis of Music I.** Lecture, four hours; laboratory, one hour. Prerequisites: courses 11A-11B-11C, 12A, 14A-14B. Courses 11C and 12A may be taken concurrently with course 26A. Course 26A is prerequisite to 26B, which is prerequisite to 26C. The history and literature of music from the beginning of the Christian era to 1750, with emphasis on analysis of representative works of each style period. Materials selected illustrate the history of style and changing techniques of composition.

**60A-65. Undergraduate Instruction in Performance.** Limited to music majors (all lower division majors and upper division majors not in the performance specialization). Individual instruction of one hour per week. Students must perform in a practicum once during the academic year. Units are distributed on the basis of one unit each for Fall and Winter Quarters and two units for Spring Quarter. Grades are assigned by the applied instructor in Fall and Winter and by jury examination in Spring. May be repeated for credit:

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| <b>60A.</b> Violin.           | Ms. Kamei, Mr. Tregler                 |
| <b>60B.</b> Viola.            | Ms. Kestenbaum                         |
| <b>60C.</b> Cello.            | Mr. Oliver                             |
| <b>60D.</b> String Bass.      | Mr. Zibits                             |
| <b>60E.</b> Harp.             | Ms. Neill                              |
| <b>60F.</b> Classical Guitar. | Mr. Norman, Mr. Yates                  |
| <b>60G.</b> Viola da gamba.   | Ms. Marcus                             |
| <b>60K.</b> Lute.             |  |
| <b>61A.</b> Flute.            | Mr. Stokes                             |
| <b>61B.</b> Oboe.             | Mr. Bussell                            |
| <b>61C.</b> Clarinet.         | Mr. Gray                               |
| <b>61D.</b> Bassoon.          | Mr. Munday                             |
| <b>61E.</b> Saxophone.        | Mr. Gray                               |
| <b>62A.</b> Trumpet.          | Mr. Guarneri                           |
| <b>62B.</b> French Horn.      | Ms. Graham                             |
| <b>62C.</b> Trombone.         | Mr. Staples                            |
| <b>62D.</b> Tuba.             | Mr. Johnson                            |
| <b>63.</b> Percussion.        | Mr. Peters                             |
| <b>64A.</b> Piano.            | Mrs. Harris, Mr. Tzerko, and the Staff |
| <b>64B.</b> Organ.            | Mr. Harmon                             |
| <b>64C.</b> Harpsichord.      | Ms. Karp                               |
| <b>65.</b> Voice.             |  |

Miss Gibson, Mr. Guarneri, Miss Hinson

**80A-80N. Performance Organizations (1 unit each).** Performance, three hours. Prerequisite: audition. Limited to nonmusic majors (courses 90A-90N are for music majors). May be repeated for credit. **80A.** A Cappella Choir; **80B.** University Chorus; **80C.** Madrigal Singers; **80D.** Opera Workshop; **80E.** Symphony Orchestra; **80F.** Concert Band; **80G.** Symphonic Wind Ensemble; **80H.** Collegium Musicum; **80J.** Men's Glee Club; **80K.** Women's Glee Club; **80L.** Musical Comedy Workshop; **80M.** Marching and Varsity Bands; **80N.** Jazz Ensemble.

**81A-81Z. Ethnomusicology Performance Organizations (1 unit each).** Performance, three hours. Prerequisite: consent of instructor. Limited to nonmusic majors (courses 91A-91Z are for music majors). May be repeated for credit. **81A.** Music and Dance of the American Indian; **81B.** Music and Dance of Bali; **81C.** Music and Dance of Bulgaria; **81D.** Music and Dance of China; **81E.** Music and Dance of Ghana; **81F.** Music and Dance of India; **81G.** Music and Dance of Japan; **81H.** Music of Java; **81J.** Music of Korea; **81K.** Music of Mexico; **81L.** Music of Persia; **81M.** Music of Thailand; **81N.** Music of the Near East; **81Z.** Open Ensemble.

**90A-90N. Performance Organizations (No credit).** Performance, three hours. Prerequisite: audition. Limited to music majors (courses 80A-80N are for nonmusic majors). Music majors may enroll in only one performance organization per quarter. May be repeated. **90A.** A Cappella Choir; **90B.** University Chorus; **90C.** Madrigal Singers; **90D.** Opera Workshop; **90E.** Symphony Orchestra; **90F.** Concert Band; **90G.** Symphonic Wind Ensemble; **90H.** Collegium Musicum; **90J.** Men's Glee Club; **90K.** Women's Glee Club; **90L.** Musical Comedy Workshop; **90M.** Marching and Varsity Bands; **90N.** Jazz Ensemble.

**91A-91Z. Ethnomusicology Performance Organizations (No credit).** Performance, three hours. Prerequisite: consent of instructor. Limited to music majors (courses 81A-81Z are for nonmusic majors). Music majors may enroll in only one performance organization per quarter. May be repeated. **91A.** Music and Dance of the American Indian; **91B.** Music and Dance of Bali; **91C.** Music and Dance of Bulgaria; **91D.** Music and Dance of China; **91E.** Music and Dance of Ghana; **91F.** Music and Dance of India; **91G.** Music and Dance 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; **91Z.** Open Ensemble.

## Upper Division Courses

**100A-100B-100C. Music in American Education (2 units each).** Lecture, three hours; laboratory, one hour. Prerequisites: courses 11A-11F, 12A-12B, 14A-14C, 14D, 26A-26B-26C, 193, and 195. Course 110A is prerequisite to 100B; course 111A is prerequisite to 100C. A critical study of principles and practices in music education, historical and current, at elementary and secondary levels. Each course may be taken independently for credit. **100A.** General Music; **100B.** Choral Music; **100C.** Instrumental Music.

Mr. Anderson, Mr. Hatcher, Miss Hooper

**101. Advanced Keyboard Harmony and Score Reading.** Prerequisite: course 11F or consent of instructor. Intensive individual work in keyboard harmony and the reading of chamber and orchestral scores. May be repeated once for credit.

**103A-103B. Advanced Theory.** Discussion, three hours. Prerequisites: courses 11A-11F, 12A-12B, 14A-14C, 14D. Course 103A or consent of instructor is prerequisite to 103B. Techniques of tonal coherence studied through analysis and compositional exercises in the styles of given periods.

**104A-104B. Advanced Counterpoint.** Discussion, three hours. Prerequisites: courses 11A-11F, 12A-12B, 14A-14C, 14D. Course 104A or consent of instructor is prerequisite to 104B. Comparative contrapuntal practices and forms from all periods studied through analysis and compositional exercises in the styles of the given periods.



**105. Introduction to Composition.** Lecture, three hours. Prerequisites: courses 11A-11F, 12A-12B, 14A-14C, 14D. Intended for music majors in specializations other than composition. The nature of the compositional process is explored, with selected exercises in specific techniques and styles.

**106A. Instrumentation.** Discussion, three hours. Prerequisites: courses 11A-11F, 12A-12B, 14A-14C, 14D. Not open to students with credit for course 106A prior to Fall Quarter 1984. Ranges and characteristics of instruments, exercises in scoring.

**106B-106C. Advanced Orchestration.** (Formerly numbered 106A-106B.) Discussion, three hours. Prerequisite: course 106A. Course 106B is prerequisite to 106C and is not open for credit to students with credit for course 106A prior to Fall Quarter 1984. Scoring and analysis for ensembles and full orchestra.

**107A-107B-107C. Composition.** Lecture, three hours. Prerequisites: courses 11A-11F, 12A-12B, 14A-14C, 14D. Course 107A is prerequisite to 107B, which is prerequisite to 107C. Designed for students specializing in composition and theory. Vocal and instrumental composition in the smaller forms, including style composition and 20th-century techniques.

**108. Acoustics.** Lecture, three hours. Prerequisite: consent of instructor. The interrelationship of acoustical and musical phenomena. Tuning systems, consonance and dissonance, tonal quality. Lecture, demonstration, discussion, and tours of instrumental collections and acoustical research facilities.

Mr. Hutchinson

**109A-109B-109C. Composition for Motion Pictures and Television (2 units each).** Prerequisites: courses 11A-11F, 12A-12B, 14A-14C, and 14D, or consent of instructor. Course 109A is prerequisite to 109B, which is prerequisite to 109C. Composition of music for the dramatic and documentary film in cinema and television. Techniques used in recording and editing.

Mr. Raksin

**110A-110B. Study and Conducting of Choral Literature (2 units each).** Lecture, three hours. Prerequisites: courses 11A-11F, 12A-12B, 14A-14C, 14D, and 26A-26B-26C, or consent of instructor. The theory and practice of conducting as related to the study of choral works from the Renaissance to the present day. **110A.** Conducting fundamentals, including basic skills, techniques, analysis, and repertoire. **110B.** Prerequisite: course 110A. Stylistic interpretation of music literature.

Mr. Hatcher, Mr. Weiss

**111A-111B. Study and Conducting of Instrumental Literature (2 units each).** Lecture, three hours. Prerequisites: courses 11A-11F, 12A-12B, 14A-14C, 14D, and 26A-26B-26C, or consent of instructor. The theory and practice of conducting as related to the study of instrumental works for string and wind ensembles. **111A.** Conducting fundamentals, including basic skills, techniques, analysis, and repertoire. **111B.** Prerequisite: course 111A. Stylistic interpretation of music literature.

Mr. Henderson, Mr. Westbrook

**112A-112B. Practical Scoring.** Lecture, two hours; laboratory, two hours. Prerequisites: courses 11A-11F, 12A-12B, 14A-14C, 14D, and 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.

Mr. Henderson, Mr. Weiss

**113A-113B. Music Literature for Children.** Lecture, three hours; laboratory, one hour. Prerequisites: courses 1A, 2A, or consent of instructor. Course 113A is not prerequisite to 113B. Designed for the non-music major, particularly the elementary education student. A 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.

Miss Hooper

**115A-115E. Study of Instrumental and Vocal Techniques (1 unit each).** Laboratory, three hours. Prerequisites or corequisites: courses 11A, 193, and consent of instructor. 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.

Mr. Anderson, Mr. Hatcher

**118A-118B. Advanced Study and Conducting of Instrumental Literature (2 units each).** (Formerly numbered 118.) Lecture, one hour; laboratory, two hours. Prerequisites: courses 111A-111B or consent of instructor. Course 118A is not prerequisite to 118B. Detailed investigation of musical styles, performance practices, and rehearsal techniques. Preparation by student to conduct an established student instrumental performing group. **118A.** Orchestra; **118B.** Wind Ensemble.

Mr. Krachmalnick, Mr. Westbrook

**119A-119B-119C. Advanced Study and Conducting of Choral Literature (2 units each).** Lecture, three hours. Prerequisites: courses 110A-110B. Course 119A is prerequisite to 119B, which is prerequisite to 119C. Advanced theory and practice of conducting; the study of representative choral works from the conductor's viewpoint.

Mr. Hatcher, Mr. Weiss

**126A-126B-126C. History and Analysis of Music II.** Lecture, four hours; laboratory, one hour. Prerequisites: courses 11A-11F, 12A-12B, 14A-14C, 14D, and 26A-26B-26C. Course 11F may be taken concurrently with course 126A. Course 126A is prerequisite to 126B, which is prerequisite to 126C. The history and literature of music from 1750 to the present, with emphasis on analysis of representative works of each style period. Materials selected illustrate the history of style and changing techniques of composition.

**C127A-C127F. Selected Topics in the History of Music.** (Formerly numbered 127A-127F.) Lecture, three hours. Prerequisites to all courses: courses 11A-11F, 12A-12B, 14A-14C, 14D, and 26A-26B-26C; in addition, 126A is prerequisite to C127D, 126B is prerequisite to C127E, and 126C is prerequisite to C127F. Designed as a proseminar for undergraduates in preparation for graduate work. Special aspects of the music of each period are 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 United States.** Prerequisite: course 2A or consent of instructor. A survey of art music from Colonial times to the present.

Mr. Stevenson

**131A-131B. Music of Hispanic America.** Prerequisite: consent of instructor. Course 131A is not prerequisite to 131B. Survey of art music, including attention to ethnic developments and peninsular background. **131A.** Mexico, Central America, and the Caribbean Isles; **131B.** Hispanic South America.

Mr. Stevenson

**132A-132B. Development of Jazz.** Lecture, three hours; laboratory, one hour. Prerequisite: course 2A or consent of instructor. Course 132A is prerequisite to 132B. An introduction to jazz; its historical background and its development in the United States.

Mr. Pinckney

**133. Bach.** Lecture, two hours; laboratory, two hours. The life and works of Johann Sebastian Bach.

**134. Beethoven.** Lecture, two hours; laboratory, two hours. The life and works of Ludwig van Beethoven.

**135A-135B-135C. History of the Opera.** Lecture, four hours; laboratory, one hour. **135A.** Opera of the Baroque and Classical Periods; **135B.** Opera of the Romantic Period; **135C.** Opera of the 20th Century.

**137A-137B. Psychology of Music.** **137A.** Designed for nonmajors. An introduction to the psychology of music; historical background and the broad field of study, including the use of music as a stimulus, tests and measurements, and related modes of musical behavior. **137B.** Prerequisites: courses 11A-11B-11C, 12A, 14A-14B, and 26A-26B-26C, or consent of instructor. A study of the psychological factors and problems in music from the points of view of the listener, performer, and composer.

**138. Aesthetics of Music.** Lecture, three hours. Designed for nonmajors. A historical survey of musical aesthetic thought and practice. Selected readings and musical examples.

Mr. Schwadron

**139. History and Literature of Church Music.** Prerequisite: course 2A or consent of instructor. A study of the forms and liturgies of Western church music.

Mr. Cole

**140A-140B-140C. Musical Cultures of the World.** Prerequisite: consent of instructor. Course 140A is not prerequisite to 140B, which is not prerequisite to 140C. A survey of the musical cultures of the world (excluding Western art music), the role of music in society and its relationship to other arts; consideration also to scale structure, instruments, musical forms, and performance standards. **140A** deals with the musical cultures of Europe and the Americas; **140B** with those of the Near East and Africa; **140C** with those of South Asia, Southeast Asia, and the Far East.

**141. Survey of Music in Japan.** Lecture, three hours. A survey of the main genres of Japanese traditional music, including Gagaku, Buddhist chant, Biwa music, Koto music, Shamisen music, and the music used in various theatrical forms.

**142A-142B. Folk Music of Eastern Europe and the Mediterranean.** Prerequisite: consent of instructor. Course 142A is not prerequisite to 142B. **142A** introduces the student to the forms and styles of traditional music in Eastern Europe (including the Balkans). Historical and ethnological aspects of the music are illustrated by numerous recorded examples from the major cultural subdivisions of the area. **142B** introduces the student to the forms and styles of traditional music in the Mediterranean basin, particularly those in which interaction between European and Oriental styles is apparent.

Mr. Porter, Mr. Racy

**143A-143B. Music of Africa.** Lecture, three hours; laboratory, two hours. Prerequisites: courses 140A-140B-140C or consent of instructor. Course 143A is prerequisite to 143B. An investigation of the historical aspects, social functions, and relationships of music to other art forms in selected areas of Africa.

Ms. Djedje

**144. American Popular Music.** Lecture, three hours; laboratory, two hours. Recommended prerequisite: course 1A or equivalent. A survey of the 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 a comparison between traditional pre-1950 popular music and trends in post-1950 popular music.

Mr. Morton

**145. History of Chinese Opera.** Prerequisite: consent of instructor. A 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.

Mr. Lui

**146A-146B-146C. Studies in Chinese Instrumental Music.** Lecture, three hours; laboratory, one hour. Prerequisite: consent of instructor. Course 146A is not prerequisite to 146B, which is not prerequisite to 146C. **146A.** A study of the literature, major sources, paleography, theory, and philosophy of the Ch'in and Pi P'a, including transcription and analysis. **146B.** A comprehensive study of Chinese musical instruments, classification system, specific musical notation, and use in the context of Chinese society. **146C.** A study of the rules of improvisation, particularly as related to the Shanghai style, as realized on the P'i Pa, Ti, Er Hu, San Shien, Sheo, and related instruments. Mr. Lui

**147A-147B. Music of China.** Lecture, three hours; laboratory, two hours. Prerequisites: courses 140A-140B-140C or consent of instructor. **147A.** History and theory of the music of China, including a survey of various provinces. Instrumental techniques. **147B.** Prerequisite: course 147A. Introduction to various notational systems. Analysis of representative styles. Mr. Lui

**148. Folk Music of South Asia.** Prerequisite: consent of instructor. An illustrated survey of some of the regional genres, styles, and musical instruments found in India and Pakistan, with special reference to the religious, social, economic, and cultural context of their occurrence. Mr. Jairazbhoy

**149. The Anthropology of Music.** A cross-cultural examination of music in the context of social behavior and how musical patterns reflect patterns exhibited in other cultural systems, including economic, political, religious, and social structure.

**151A-151B. History of Musical Performance Practices.** Prerequisites: courses 11A-11F, 12A-12B, 14A-14C, 14D, and 26A-26B-26C. A general survey of musical interpretation and re-creation from the viewpoint of stylistic authenticity. **151A.** Medieval through Baroque; **151B.** Classic through 20th Century.

**152. Survey of Music in India.** A consideration of the main music genres in India, with particular reference to the religious, sociocultural, and historical background of the country. Mr. Jairazbhoy

**153A-153B-153C. Music of the American Indians.** American Indian music is studied within the broader context of styles, cultural values, and sources. Films, recordings, lectures, and limited group singing and dancing relate the music to the culture producing it. **153A.** Musics of the Eastern, California-Yuman, Great Basin, and Northwest Coast Areas; **153B.** Musics of the Athabascan, Pueblo, Plains, and Modern Pan-Indian Trends; **153C.** Sociology of American Indian music, with specific reference to the manner in which cultural values, prescriptions, oral traditions, language, and technological advances have affected music of various tribes. Ms. Heth

**M154A-M154B. The Afro-American Musical Heritage.** (Same as Folklore M154A-M154B.) Prerequisite: course 1A or consent of instructor. Course M154A is prerequisite to M154B. A study of Afro-American rhythm, dance, music, field hollers, work songs, spirituals, blues, and jazz; the contrast between West African, Afro-American, and Afro-Brazilian musical traditions. Ms. DjeDje

**155. Audio Technology for Musicians.** Lecture, two hours; laboratory, three hours. Prerequisites: courses 11C, 14B, consent of instructor. The theory and practice of sound engineering in relation to concert and studio recording techniques. Mr. Reale

**156. Electronic Music: Theory and Techniques.** (Formerly numbered 156A.) Lecture, three hours; laboratory, three hours. Prerequisites: course 107A or equivalent and consent of instructor. Not open for credit to students with credit for former course 156A. 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. Mr. Ashforth

**157. Music of Brazil.** Prerequisites: consent of instructor and some knowledge of Portuguese. History of ethnic and art music in Brazil, with some reference to Portuguese antecedents. Mr. Stevenson

**158. New Orleans Jazz.** Lecture, three hours; discussion, two hours. Major Black and Creole figures in the origin and development of jazz in New Orleans from the turn of the 20th century through the 1960s, with emphasis on polycultural roots, local municipal traditions, and stylistic analysis. Mr. Ashforth

**159. The Development of Rock.** Prerequisite: consent of instructor. The history of rock from the 1950s to the 1970s. An in-depth survey of stylistic trends illustrated by pertinent examples and accompanied by extensive musical analysis. Mr. Stevenson

**160A-165. Undergraduate Instruction in Performance for the Performance Specialist.** Limited to upper division music majors who have been accepted by audition into the 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. Units are distributed on the basis of one unit each for Fall and Winter Quarters and four units for Spring Quarter. Grades are assigned by the applied instructor in Fall and Winter and by jury examination in Spring. May be repeated for credit:

|                                |                       |
|--------------------------------|-----------------------|
| <b>160A.</b> Violin.           | Ms. Kamei, Mr. Tregar |
| <b>160B.</b> Viola.            | Ms. Kestenbaum        |
| <b>160C.</b> Cello.            | Mr. Oliver            |
| <b>160D.</b> String Bass.      | Mr. Zibits            |
| <b>160E.</b> Harp.             | Ms. Neill             |
| <b>160F.</b> Classical Guitar. | Mr. Norman, Mr. Yates |
| <b>160G.</b> Viola da gamba.   | Ms. Marcus            |
| <b>160K.</b> Lute.             |                       |
| <b>161A.</b> Flute.            | Mr. Stokes            |
| <b>161B.</b> Oboe.             | Mr. Bussell           |
| <b>161C.</b> Clarinet.         | Mr. Gray              |
| <b>161D.</b> Bassoon.          | Mr. Munday            |
| <b>161E.</b> Saxophone.        | Mr. Gray              |
| <b>162A.</b> Trumpet.          | Mr. Guarneri          |
| <b>162B.</b> French Horn.      | Ms. Graham            |
| <b>162C.</b> Trombone.         | Mr. Staples           |
| <b>162D.</b> Tuba.             | Mr. Johnson           |
| <b>163.</b> Percussion.        | Mr. Peters            |
| <b>164A.</b> Piano.            |                       |

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|---------------------------|---------------------------------------|
|                           | Mr. Harris, Mr. Tzerko, and the Staff |
| <b>164B.</b> Organ.       | Mr. Harmon                            |
| <b>164C.</b> Harpsichord. | Ms. Karp                              |
| <b>165.</b> Voice.        |                                       |

Miss Gibson, Mr. Guarnieri, Miss Hinson

**174A-174D. Musical Terminology and Diction for Musicians (1 unit each).** Prerequisite: music major or consent of instructor. Highly recommended for students enrolled in the Opera Workshop, as well as students in performance and music education. Intensive work in basic pronunciation and diction (for students with no background in the language), as well as more specialized work in terminology and translation of song texts and performance directions (for students with some background in the language). Students may enroll in two sections per quarter; a total of four units may be applied toward the degree requirements. Each course may be repeated once for credit. **174A.** German; **174B.** French; **174C.** Spanish; **174D.** Italian. Mrs. Hast

**175. Chamber Ensembles (2 units).** Prerequisite: audition. Students must be at the advanced level of their instrument to participate. Applied study of the performance practices of literature appropriate to the ensemble. Students may enroll in two sections per quarter; a total of twelve units may be applied toward the degree requirements. May be repeated for credit.

**C176. Electronic Music Composition.** (Formerly numbered C156B.) Lecture, three hours; studio, three hours. Prerequisites: course 156, advanced experience and accomplishment in serious composition (art music), and consent of instructor. Not open for credit to students with credit for former course C156B. 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. Mr. Ashforth

**M180. Analytical Approaches to Folk Music.** (Same as Folklore M180.) Prerequisites: courses 5A-5B-5C or consent of instructor. An intensive study of the methods and techniques necessary to the understanding of Western folk music. Mr. Porter

**M181. Folk Music of Western Europe.** (Same as Folklore M181.) Prerequisite: consent of instructor. The course introduces students to the forms and styles of traditional music in Western Europe. Historical and ethnological perspectives on this music are combined with numerous recorded examples from the major cultural subdivisions of the region. Mr. Porter

**184. Experimental Research in Music.** Lecture, three hours. Prerequisites: courses 11A-11F, 12A-12B, 14A-14C, 14D, and 26A-26B-26C, or 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.

**C185. Historical and Philosophical Foundations of Music Education.** (Formerly numbered 185.) Lecture, three hours. Prerequisite: completion of the undergraduate music education specialization or consent of instructor. The development of music education in the United States according to established schools of thought. May be concurrently scheduled with course C225. Mr. Schwadron

**187. Problems in Musical Aesthetics.** Lecture, three hours. Prerequisites: courses 11A-11F, 12A-12B, 14A-14C, 14D, and 26A-26B-26C. Recommended for students in all music specializations. Critical approach to musical problems of aesthetic analysis, description, values, theories, including both Western and non-Western considerations. Mr. Schwadron

**188A-188F. The Master Composer.** (Formerly numbered 188A-188Z.) Lecture, three hours; laboratory, one hour. A survey of the works of an outstanding composer in Western art music, considered within the context of his age. Each course may be repeated for a maximum of sixteen units. **188A.** Middle Ages; **188B.** Renaissance; **188C.** Baroque; **188D.** Classic; **188E.** Romantic; **188F.** 20th Century.

**189. The Symphony.** Lecture, three hours; laboratory, one hour. A survey of symphonic literature from Haydn through the 20th century, with special emphasis on the current symphonic programs of the Los Angeles Philharmonic Orchestra and other performing groups in the Los Angeles area.

**C190A-C190B. Proseminar in Ethnomusicology.** (Formerly numbered 190A-190B.) Lecture, three hours. Prerequisites: courses 140A-140B-140C. May be concurrently scheduled with courses C290A-C290B.

**193. Proseminar in Music Education (2 units).** Prerequisites or corequisites: course 11A and sophomore standing. A historical and philosophical introduction to the field. Mr. Schwadron

**195. Field Studies in Music Education (2 units).** Discussion, two hours; laboratory, two hours. Prerequisite: course 193. Discussion and observation of current practices. Mr. Anderson, Miss Hooper

**199. Special Studies in Music (2 or 4 units).** Hours to be arranged. Prerequisites: senior standing, consent of instructor and department Chair, 3.0 GPA. Individual studies in music resulting in a research project. May be repeated for a maximum of eight units. Mr. Harmon and the Staff

## Graduate Courses

**200A. Research Methods and Bibliography (6 units).** Lecture, three hours. Prerequisite: graduate standing. A survey of general bibliographic material in music.

**200B. Research Methods and Bibliography (6 units).** Lecture, three hours. Prerequisite: course 200A. Guided writing, utilizing specific bibliography, in systematic musicology, ethnomusicology, and music education.

**201A-201B-201C. Introductory Seminar in Historical Musicology (6 units each).** Lecture, three hours. Course 201A is prerequisite to 201B, which is prerequisite to 201C. An introduction at the graduate level to the central questions and problems in the history of Western music designed to give beginning graduate students a unified background for the remainder of their studies and to employ their developing skills in research and bibliography.

**210. Medieval Notation (6 units).** Lecture, three hours. Prerequisite: consent of instructor. Vocal and instrumental notation; paleography of the period.

Mr. Reaney

**211. Renaissance Notation (6 units).** Lecture, three hours. Prerequisite: consent of instructor. Vocal and instrumental notation; paleography of the period.

Mr. D'Accone

**C225. Historical and Philosophical Foundations of Music Education.** Lecture, three hours. Prerequisites: graduate standing and consent of instructor. The development of music education in the United States according to established schools of thought. May be concurrently scheduled with course C185. Additional assignments, as well as evidence of a greater depth of study, are required of graduate students.

Mr. Schwadron

**C226. Electronic Music Composition.** Lecture, three hours; studio, three hours. Prerequisites: course 156, graduate standing, advanced experience and accomplishment in serious composition (art music), and 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.

Mr. Bourland

**C227A-C227F. Selected Topics in the History of Music.** Lecture, three hours. Prerequisite: graduate standing. Special aspects of the music of each period are 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 a greater depth of study, are required of graduate students. **C227A.** Middle Ages; **C227B.** Renaissance; **C227C.** Baroque; **C227D.** Classic; **C227E.** Romantic; **C227F.** 20th Century.

**248. Seminar in Comparative Music Theory (6 units).** Lecture, three hours. Prerequisite: consent of instructor. The comparative study of the 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.

**250A-250B. Seminar in the History of Music Theory (6 units each).** Lecture, three hours. Prerequisite: course 200A. Course 250A is not prerequisite to 250B. **250A.** Music Theory from Antiquity through Zarlino; **250B.** Music Theory from Rameau to the Present.

Mr. D'Accone, Mr. Reaney

**251A-251D. Seminar in Special Topics in Composition and Theory.** Seminar, three hours. An 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. Seminar in Composition (6 units each).** Lecture, three hours. Prerequisites: courses 106B and 107C. Course 252A is prerequisite to 252B, which is prerequisite to 252C. Courses may be taken out of sequence only by consent of instructor. May be repeated for credit.

**253. Seminar in Notation and Transcription in Ethnomusicology (6 units).** Lecture, three hours. Prerequisites: courses 140A-140B-140C and C190A-C190B, or consent of instructor.

**254A-254B. Seminar in Field and Laboratory Methods in Ethnomusicology (6 units each).** Lecture, three hours. Prerequisites: courses C190A-C190B or consent of instructor. Training includes experience in handling of technical apparatus, films, recording, processing, and editing; field projects.

Mr. Jairazbhoy

**255. Seminar in Musical Instruments of the Non-Western World (6 units).** Lecture, three hours. Prerequisites: courses 140A-140B-140C and C190A-C190B, or consent of instructor.

Ms. De Vale

**256. Seminar in Musical Form (6 units).** Lecture, three hours. Prerequisites: courses 126A-126B-126C. The analysis of structural organizations in music.

Mr. Hudson

**257. Seminar in Music of the United States and Canada.** Seminar, three hours. Prerequisite: course 130.

**M258. Seminar in Folk Music.** (Same as Folklore M258.) Seminar, three hours. Prerequisite: consent of instructor.

Mr. Porter, Mr. Wilgus

**260A-260F. Seminar in Historical Musicology (6 units each).** Lecture, three hours. Prerequisites: courses 200A, 201A-201B-201C, and 210 or 211 (either may be taken concurrently). May be repeated for credit. **260A.** Medieval Music; **260B.** Renaissance; **260C.** Baroque; **260D.** Classical; **260E.** Romantic; **260F.** General Topics.

**261A-261F. Problems in Performance Practices.** Seminar, three hours. Prerequisites: courses 151A-151B or consent of instructor. An 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. Seminar in Music of the 20th Century.** Seminar, three hours. Prerequisites: courses 126A-126B-126C. **266A.** Discussion and analysis of the major works of the 20th century before World War II. Emphasis on the study of groups of works written at the same time in history. **266B.** Discussion and analysis of composers and their works from 1945 to the present.

**269. Seminar in the History of European Instruments.** Seminar, three hours.

Mr. Hammond

**270A-270G. Seminar in Music Education (6 units each).** (Formerly numbered 270A-270F.) 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.

**272. Seminar in Systematic Musicology.** Seminar, three hours. Prerequisites: course 108 and consent of instructor. May be repeated for credit.

**273. Seminar in Acoustics of Music (6 units).** Lecture, three hours. Prerequisite: course 187 or consent of instructor. May be repeated once for credit.

Mr. Hutchinson

**275. Seminar in Aesthetics of Music (6 units).** Lecture, three hours. Prerequisite: course 187 or consent of instructor. May be repeated once for credit.

Mr. Schwadron

**276. Seminar in the Psychology of Music (6 units).** Lecture, three hours. Prerequisite: course 184 or consent of instructor. Selected topics in the psychology of music, including recent findings in brain research, musical perception, learning, cognition, memory, therapy, affect, meaning, and measurement. May be repeated for credit.

**280. Seminar in Ethnomusicology (6 units).** Lecture, three hours. Prerequisites: courses 140A-140B-140C, C190A-C190B, 200A, 200B. May be repeated for credit.

**281A-281B. Music of Indonesia.** Lecture, three hours. Prerequisite: consent of instructor. During the first quarter, emphasis is on the music and related performing arts of Java. The second quarter focuses on the music and performing arts of Bali and other Indonesian islands. Concurrent participation in one of the Indonesian performance groups is required.

Ms. De Vale

**282. Music of Iran and Other Non-Arabic-Speaking Communities.** Seminar, three hours. Prerequisite: consent of instructor. A comparative study of the 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 the Near East performance group is required.

Mr. Racy

**284. Music of the Arabic-Speaking Near East.** Lecture, three hours. Prerequisite: consent of instructor. An investigation of the historical and cultural backgrounds, the main musical styles, the relationship between theory and practice and emphasis on mode and improvisation, and 20th-century trends. Concurrent participation in the Near East performance group is required.

Mr. Racy

**285. Music of Tibet.** Seminar, three hours. Prerequisite: consent of instructor. A study of the traditional music of ethnic Tibet as ritual, art, and folklore in its cultural matrix and its relationship with other arts. Topics include traditional instruments and ensembles and studies in formal and stylistic analysis.

**286A-286B. Classical Music of India.** Seminar, three hours. Prerequisite: consent of instructor. A study of the history, theory, and practice of north and south Indian classical music. The first quarter is concerned primarily with music history and traditional theory, while the second quarter involves analysis of present-day forms, styles, techniques, and musical instruments. Concurrent participation in the Indian performance group is required.

Mr. Jairazbhoy

**287. Seminar in African Music.** Seminar, three hours. Prerequisites: courses 140A-140B-140C, 143A-143B, 200A, 200B. Intensive investigation of musical style, historical, social, and cultural aspects of indigenous musical traditions and related art forms.

**288. Seminar in North American Indian Music.** Seminar, three hours. Prerequisite: consent of instructor. A 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. The influence of Western music in acculturative contexts is also discussed.

Ms. Heth

**C290A-C290B. Proseminar in Ethnomusicology.** Lecture, three hours. Prerequisites: graduate standing and 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 a greater depth of study, are required of graduate students.

**370. Music in General Education (2 units).** Prerequisite: graduate standing in the Graduate School of Education 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.

Mr. Anderson, Miss Hooper

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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.

**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 the 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.

**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.

Mr. Krachmalnick

**475. Master Class in Conducting (6 units).** Laboratory, three hours. Limited to M.F.A. students. Intensive study and preparation of musical literature in the specialized field of conducting. May be repeated for credit.

**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 a teaching apprentice in the Music Department. Required of all new teaching apprentices. A special course for teaching apprentices dealing with the problems and practices of teaching music at the college level. May not be applied toward degree requirements. S/U grading.

Miss Hooper

**596A. Directed Individual Studies in Orchestration and Composition (2, 4, or 6 units).** Only four units may be applied toward the M.A. or M.F.A. degree requirements. May be repeated for credit.

**596B. Directed Individual Studies in Musicology (2, 4, or 6 units).** Only four units may be applied toward the M.A. or M.F.A. course requirements.

**596C. Directed Individual Studies in Music Education (2, 4, or 6 units).** Only four units may be applied toward the M.A. or M.F.A. course requirements.

**597. Preparation for Master's Comprehensive Examination or Ph.D. Qualifying Examination (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

**Dance C120.** Music as Dance Accompaniment

221. Music for Dance

**Folklore and Mythology CM106.** Anglo-American Folk Song

M123B. Finnish Folk Song and Ballad

M243A. The Ballad

M243B. Problems in Ballad Scholarship

## Theater Arts

2310 Macgowan Hall, 825-5761

### Professors

William B. Adams, M.A.  
John R. Cauble, M.A.  
Shirley M. Clarke, A.A.  
Donald B. Crabs, M.A., *Chair*  
Arthur B. Friedman, Ph.D.  
William Froug, B.J.  
Henry Goodman, Ph.D.  
Richard C. Hawkins, M.A.  
Melvyn B. Helstien, Ph.D.  
Carl R. Mueller, Ph.D.  
Delia N. Salvi, Ph.D.  
Louis C. Stoumen, B.A.  
Frank A. Valert  
Abe V. Wollock, Ph.D.  
John W. Young, M.A.

### Emeritus Professors

Walden P. Boyle, Ph.D.  
Robert F. Corrigan, M.A.  
Michael Gordon, M.F.A.  
Edward Hearn, M.A.  
John H. Jones, M.A.  
Walter K. Kingson, Ed.D.  
Frank D. La Tourette, M.Litt.  
William W. Melnitz, Ph.D.  
Darrell E. Ross, M.F.A.

### Associate Professors

Nicholas K. Browne, Ed.D.  
Teshome H. Gabriel, Ph.D.  
Gary A. Gardner, Ph.D.  
Robert H. Hethmon, Ph.D.  
Stephen D. Mamber, Ph.D.  
Dan F. McLaughlin, M.A.  
Sylvia E. Moss, B.A.  
Robert A. Nakamura, M.F.A.  
Thomas J. Orth, M.F.A.  
Jorge R. Preloran, B.A.  
Ruth E. Schwartz, Ph.D.  
Howard Suber, Ph.D.  
William D. Ward, M.F.A.  
Norman F. Welsh, B.A.  
William T. Wheatley, Ph.D.  
Margaret L. Wilbur, M.F.A.  
William H. Menger, M.A., *Emeritus*

### Assistant Professors

Alan M. Armstrong, M.F.A.  
Janet L. Bergstrom, Ph.D.  
Ivan N. Cury, M.F.A.  
Michael J. Hackett, Ph.D.  
Patricia M. Harter, Ph.D.  
Michael S. McLain, Ph.D.  
Joanne T. McMaster, M.F.A.  
Kathryn C. Montgomery, Ph.D.  
Beverly J. Robinson, Ph.D.  
Richard S. Rose, M.F.A.  
Carol J. Sorgenfrei, Ph.D.  
Richard Walter, M.A.

### Lecturers

John D. Boehm, M.A.  
Edgar L. Brokaw, B.A.  
Hugh M. Grauel, M.A.  
Mark McCarty, M.A.

### Adjunct Professors

Theodore Apstein, Ph.D.  
Robert E. Lee, D.Litt.

### Adjunct and Visiting Associate Professors

Lewis R. Hunter, M.A., *Visiting*  
Robert Trachinger, *Adjunct*

### Visiting Assistant Professor

Jennifer Penny, M.F.A.

### Adjunct and Visiting Lecturers

Robert Bookman, J.D., *Visiting*  
Matthew J. Chait, M.A., *Visiting*  
Gordon Davidson, M.A., *Visiting*  
Peter J. Dekom, J.D., *Visiting*  
Anthony DeLongis, B.A., *Visiting*  
H. Peter Guber, LL.M., *Visiting*  
William E. Kerstetter, J.D., *Visiting*  
Bob Merrill, *Visiting*  
William E. Oliver, *Visiting*  
Robert Rosen, M.A., *Adjunct*  
Lyne S. Trimble, M.S., *Visiting*  
George Van Buren, *Visiting*  
Romulus E. Zamora, M.F.A., *Visiting*

## Scope and Objectives

The UCLA Department of Theater Arts is considered among the finest of its kind in the country and is the only one that combines theater, motion picture, radio, and television in a single department.

The department bases its work on a solid foundation in the liberal arts. The purpose of the curriculum is to develop in its students a scholarly, creative, and professional approach to the theater arts. The aim of the department is to train graduates who will eventually make original contributions in the field of their work.

Each of the department's two divisions, Theater and Motion Picture/Television, offers an undergraduate program leading to the Bachelor of Arts degree, as well as graduate programs leading to the Master of Arts, Master of Fine Arts, and Ph.D. degrees.

## Bachelor of Arts in Theater

### Preparation for the Major

*Required:* Theater Arts 5A, 5B, 5C, 10, 20, English 90.

### The Major

*Required:* A total of 60 upper division units, including Theater Arts 130A, 140A, 141A, 142A, 143, 160 or 161A\*, 170, C172 (eight units); one course from 122, 144A, C146, 149A, 174, C190A, C190B; 22 units of approved upper division theater arts electives. Through certain of these required courses, you are responsible for completing specific production assignments related to production activity of the theater curriculum during each quarter of residence.

\*If course 161A is used to complete the requirement, 24 units of electives will be required.

## Bachelor of Arts in Motion Picture/Television

### Preparation for the Major

Admission to this major is not automatic. You may not apply until just prior to achieving full standing as a junior at the University. You must have at least 84 quarter units (56 semester units) of credit and have completed the general University and College of Fine Arts requirements before entering the major. You must also obtain departmental consent by (1) filing a letter of intention, (2) giving evidence of creative or critical ability when requested, and (3) providing additional material as determined by the department.

### The Major

The major in motion picture/television consists of 68 upper division units taken in the junior and senior years. These include Theater Arts 109, 134A, 166 (eight units), 185 (eight units); one of the following writing courses: 131, 133, 135 (eight units), 181B; two of the following film history courses: 106A, 106B, 106C, 106D, 106E, 108, 110A; two of the following film criticism courses: 107, 110B, 112, 113, 114, 116; two motion picture/television elective area courses; and four upper division adviser-approved cognate courses pertinent to your study in at least two other departments, including the theater area of the Department of Theater Arts (these courses may not be used to satisfy College of Fine Arts or University requirements). 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.

Note: 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.

Check the *Schedule of Classes* for courses limited to majors only.

### Graduate Study

The Department of Theater Arts offers the Master of Arts (M.A.), Master of Fine Arts (M.F.A.), and Doctor of Philosophy (Ph.D.) degrees in the following specializations: (1) motion picture/television and (2) theater.

### Admission

Students are generally admitted in the Fall Quarter only. Applicants for another quarter should consult the Student Affairs Office, Theater Arts, 1327 Macgowan Hall, UCLA, Los Angeles, CA 90024. Admission is competitive, and only a limited number of students are accepted each year in each program. The de-

partment does not have an application in addition to the one used by Graduate Admissions, and no screening examination prior to admission is required.

In addition to satisfying minimum University requirements for graduate admission, you must:

(1) Have completed an undergraduate major in theater or motion picture/television comparable to that offered at UCLA. Students whose theater arts preparation is determined to be deficient will be required to make up those deficiencies.

(2) Provide the department with at least three letters of reference and a statement of purpose.

Additional admission requirements are noted under each specific program.

## Master of Arts in Theater

### Admission

Requirements include a sample of scholarly or critical writing, statement of purpose, and other information (resume, portfolio, script interview, etc.) that may be required to establish the quality of work in the specialization.

### Major Fields or Subdisciplines

The program leads to a general graduate degree, though there are opportunities, through your electives and thesis or research paper topic, to stress a particular interest such as acting, children's theater, design, directing, playwriting, puppet theater, theater history and criticism, theater management, and theater technology.

### Foreign Language Requirement

The program does not require a foreign language, but you are urged to develop a proficiency in either French, German, Spanish, or Italian.

### Course Requirements

You are required to complete a minimum of ten and one-half courses (42 units), five of which must be at the graduate level, in at least one year of intensive study, laboratory exercises, and research leading to the successful completion of either the thesis or comprehensive examination plan. You are required to take an active part in the production program of the department as partial fulfillment of the degree requirements.

The required courses are Theater Arts 200, 245A-245B, and C272 (a two-unit course to be taken three times). After consultation with your adviser, you will select six courses, including one graduate course in theater history and another in theater production theory, as well as four other courses which emphasize production practice or historical study. Students ac-

cepted for joint M.A. and Ph.D. programs are required to take courses 205A, 205B, and 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.

### Thesis Plan

Before beginning work on the thesis, you 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 M.A. committee. A thesis committee is formed when you are within one quarter of completing the coursework, at which time you are eligible to advance to candidacy. You must present the adviser and the committee with a prospectus of the thesis and a petition to advance to candidacy. Both are used as the basis for approval.

If your thesis fails to pass the committee, you may present a rewritten version for approval. The number of times a thesis may be presented depends on assessments made by the committee.

### Comprehensive Examination Plan

If you elect this plan, you must complete an examination consisting of a 50-page research paper which may be associated with four units of Theater Arts 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 you should have advanced to candidacy.

## Master of Arts in Motion Picture/Television

### Admission

If you do not have an undergraduate major comparable to that of the department, you must submit for consideration film and television work done at other institutions (confirmed as your work by the instructors originally involved), as well as evidence of your production and scriptwriting competence. Alternatively, you may be required to take such courses at UCLA as will fulfill these requirements, though these courses will not be applied toward the minimum of nine courses required for the M.A. degree.

### Major Fields or Subdisciplines

The program requires that you be conversant in both film and television, for you will be tested on each in the comprehensive examination.

## Foreign Language Requirement

You may be required to demonstrate competence in a foreign language if necessary to support the research in your area of specialization.

## 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. In addition, Theater Arts 200 is required of all students. All six of the graduate-level courses must be completed with a grade of B or better.

Only eight units of courses 596A, 596B, 596C, and 598 may be applied toward the total course requirement; however, none of these courses may be applied toward the minimum graduate course requirement.

## Thesis Plan

Before beginning work on the thesis, you must obtain approval of a subject dealing with history, aesthetics, or criticism in motion picture/television and a general plan of investigation from the film/television studies committee. You must present the adviser and the committee with a prospectus of the thesis and a petition to advance to candidacy. Both are used as the basis for approval. A thesis committee is formed when you are within one quarter of completing the coursework, at which time you are eligible to advance to candidacy.

If your thesis fails to pass the committee, you may present a rewritten version for approval. The number of times a thesis may be presented depends on assessments made by the committee.

## Comprehensive Examination Plan

The written examination consists of three days of testing, four hours each day, and examines a broad range of knowledge in motion picture/television. After completion, your committee grades you either pass or fail. You may repeat any failed portions of the examination once in the following quarter.

## Master of Fine Arts in Theater

### Admission

Evidence of creative ability and professional intent is required. At the time of application to the Graduate Division, you must clearly state the degree objective (M.F.A.) and one of the following areas of specialization within the M.F.A. (Theater) program.

*Acting:* Submit strong letters of recommendation from directors familiar with your work, a complete resume of your experience, and photographs; audition for the M.F.A. faculty committee or its representative.

*Design (scenic, costume, or both):* Submit examples of creative work such as a portfolio of designs, sketches, working drawings, and photographs.

*Directing:* Submit evidence of motivation and talent through production and prompt books, reviews, critical commentaries, and strong letters of recommendation; arrange for an interview, when feasible.

*Playwriting:* Submit examples of creative writing such as full-length plays, one-act plays, and screenplays.

*Producers Program:* Submit a comprehensive statement detailing your reasons for pursuing a career as a producer/executive in theater.

*Puppet Theater:* Submit actual puppets and photographs; audition for the M.F.A. committee or its representative.

*Theater Technology:* Submit evidence of ability demonstrated through production books, working drawings, lighting plots, photographs, and strong letters of recommendation.

## Major Fields or Subdisciplines

The areas of specialization for the M.F.A. program are as specified above.

## Foreign Language Requirement

There is no foreign language requirement for the M.F.A. degree.

## Course Requirements

A total of 18 courses (72 units) is required. Only 16 units of Theater Arts 596 may be applied toward the total course requirement and the minimum graduate course requirement.

Specific course requirements for each specialization are available at the Student Affairs Office, 1327 Macgowan Hall.

*Fieldwork:* Occasionally, students fulfill project requirements in the field. As an example, a student might complete a directing or design project with a community or church organization or a municipal division such as the Parks and Recreation Department.

*Internship:* Some specializations, such as the producers program and puppet theater, may take advantage of opportunities offered by professional organizations.

## Comprehensive Examination Plan

The plan is satisfied by fulfilling a series of creative projects appropriate to your specialization. On completion of the final creative project or last quarter of residency, whichever is last, you must file for advancement to candidacy. The committee will then review and evaluate your record for a degree. Your participation in the final review will be at the discretion of the committee.

## Master of Fine Arts in Motion Picture/Television

### Admission

Applicants with diverse backgrounds and undergraduate majors in areas other than theater arts are encouraged. You must state clearly your degree objective (M.F.A.) and the area of specialization desired within the program: animation, filmmaking, screenwriting, producers program, or television production.

If you intend to concentrate in film or television production, a description of a film or television project designed to be undertaken during graduate residence at UCLA is required. This should be in proposal, script, or treatment form.

If you intend to concentrate in writing, a finished full-length feature script in dramatic form is desirable; however, other forms of creative writing may be submitted.

If you intend to concentrate in animation, a description of an animation project to be undertaken during graduate study must be submitted, preferably in storyboard form. Other creative work may be submitted.

If you intend to concentrate in the producers program, you must submit a comprehensive statement detailing your reasons for pursuing a career as a producer/executive in motion picture/television.

## Major Fields or Subdisciplines

The program includes specializations in animation, filmmaking (fictional, documentary, education), screenwriting, and television production. Subdisciplines include ethnographic film and broadcast journalism.

## Foreign Language Requirement

There is no foreign language requirement for the M.F.A. degree.

## Course Requirements

A total of 18 courses is required for the degree, five of which must be 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 at the Student Affairs Office, 1327 Macgowan Hall.

Only 16 units of Theater Arts 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 course 596A and four units of course 596B may be taken prior to advancement to candidacy. Courses 596C through 596F may be taken only after advancement to candidacy.

Fieldwork and internships are not required but may be taken as courses which may be applied toward the degree.



## Comprehensive Examination Plan

The comprehensive plan is satisfied by fulfilling projects appropriate to your specialization. No later than the beginning of your final quarter of residence, you must submit for approval to the M.F.A. committee the appropriate documents for advancement to candidacy and a list of at least three faculty members who will serve on your examination committee.

If you fail the review and evaluation of your creative work by the examination committee, you may be reexamined. The number of reviews will be determined by the committee, with final approval by the Chair of the department.

## Ph.D. in Theater

### Admission

Completion of a master's degree (M.A. or M.F.A.) equivalent to those offered by the UCLA Department of Theater Arts is required. In exceptional cases, students with an M.A. outside the field will be considered for direct admission to the program. Evidence of potential as a practicing scholar is indicated by (1) breadth and depth of advanced coursework in history, theory, and criticism; (2) imagination and quality of scholarly writing; (3) academic achievements and potential as indicated by the grade-point average, Graduate Record Examination scores, awards, scholarships, teaching assistantships, etc.

In addition, theater applicants must submit evidence of artistic competence in some facet of theater production.

The dossier submitted for admission must contain a letter describing your reasons for wishing to earn the Ph.D., plus the master's thesis or writing samples that demonstrate a high level of ability to write criticism or historical narrative. Simultaneous application may be made to both the M.A. and Ph.D. programs in theater.

Note: Supporting material will be returned only if accompanied by postage, envelope, and shipping instructions. Further information is available from the Student Affairs Office, Theater Arts, 1327 Macgowan Hall, UCLA, Los Angeles, CA 90024.

### 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.

### Foreign Language Requirement

Mastery of one foreign language is required and must be demonstrated in one of the following ways: (1) passing the Educational Testing Service examination in French, Spanish, German, or Russian with a score of 500 or better; (2) completing level five or equivalent, with a minimum grade of C, in any foreign language;

(3) passing a UCLA language examination given in any foreign language department. When mastery of more than one foreign language is necessary for your dissertation study, you will be required to take courses or pass examinations in the additional language(s). Normally, the required foreign language examinations must be passed by the end of your first year of residence.

### Course Requirements

During the first six quarters (two academic years), you must complete a minimum of 12 graduate courses (200 or 500 level) and two professional courses (Theater Arts 495A and 495B). Courses 216A, 216B, 216C are required. The remaining nine courses will be elective graduate courses, seminars, or tutorials. Of these electives, no more than four may be taken outside the division 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 will be a historical, critical, analytical, or experimental study of a theater topic.

### Teaching Experience

Every student must complete Theater Arts 495A or 496, depending on program requirements.

### Qualifying Examinations

At the end of the second quarter of residence, you must take a preliminary oral examination to be conducted by a representative committee of the faculty of your specialization. The committee will specify the areas of review and test your background preparation and progress to date and determine 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, you will be required to pass a written qualifying examination administered in three-hour segments during four successive days. Information regarding the examination is available from the divisional Ph.D. committee. You may be reexamined on any failed parts of the examination.

After you pass the written examination, a doctoral committee is formed to administer the University Oral Qualifying Examination. You are advanced to candidacy only on successful completion of this examination.

A dissertation demonstrating your ability to carry out independent and significant inquiry in a historical, theoretical, or critical field of theater arts is required. Final award of the Ph.D. depends on successful completion of the dissertation.

## Final Oral Examination

A final oral examination, held after the completion of the dissertation, may be required at the option of the dissertation committee.

## Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D. in Theater Arts.

## Ph.D. in Motion Picture/Television

### Admission

See admission requirements for the Ph.D. in Theater.

### Major Fields or Subdisciplines

You 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.

### Foreign Language Requirement

See the foreign language requirements for the Ph.D. in Theater. (In certain cases with committee approval, a research tool such as statistics or computer science may be substituted for the foreign language.)

### Course Requirements

During the first six quarters in the motion picture/television specialization, you must take 13½ courses. During the first year of residence, Theater Arts 211B, 215, and 273 must be completed, while course 274 is required in the last quarter of residence. In addition to this core sequence, course 496 is also required. Further, you must select nine graduate elective courses, at least six of which must be drawn from film and television studies offerings.

You must select from these elective courses three areas of concentration, chosen to broaden your familiarity and competence with various and diverse subject matters. 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/television, television studies, media and society, film/television as a business enterprise, and film/television production. It is expected that the dissertation topic will emerge from one of the concentrations.

### Teaching Experience

Every student must complete Theater Arts 495A or 496, depending on program requirements.

### Qualifying Examinations

See the description of qualifying examinations under the Ph.D. in Theater.

## Final Oral Examination

A final oral examination, held after the completion of the dissertation, may be required at the option of the dissertation committee.

## Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D. in Theater Arts.

## Lower Division Courses

### Theater Area

**5A. History and Drama of the Theater from Primitive Times to 1640.** Lecture, three hours; discussion, one hour. Required of theater majors. The history of the influence of different cultures, traditions, and technologies on the development of theater as a social institution.

**5B. History and Drama of the Theater from 1640 to 1900.** Lecture, three hours; discussion, one hour. Required of theater majors. The history of the influence of different cultures, traditions, and technologies on the development of theater as a social institution.

**5C. History and Drama of the Theater from 1900 to the Present.** Lecture, three hours; discussion, one hour. Required of theater majors. The history of the influence of different cultures, traditions, and technologies on the development of theater as a social institution.

**10. Fundamentals of Theater Production.** Lecture, three hours; laboratory, three hours. Required of theater majors in the first quarter of residence. A basic study of the relationship of acting, stage management, scenery, lighting, costume, and sound to the production of the play. Emphasis on the planning, procedures, materials, equipment, and disciplines of theater production.

**20. Acting Fundamentals.** Lecture/laboratory. Required of theater majors. An introduction to the interpretation of drama through the art of the actor. Development of individual insights, skills, and disciplines in the presentation of dramatic material to an audience.

## Upper Division Courses

### Theater and General Secondary Credential Areas

**100. The Teaching of Theater.** Lecture, three hours. Prerequisites: courses 160 or 161A and 162A, or consent of instructor. Highly recommended for students pursuing a secondary teaching credential. Study of current methods and problems of production as related to the secondary level.

**101. Introduction to Theater Arts (2 units).** Lecture, two hours; laboratory, two hours. Not open for credit to theater arts majors. A survey of theater, motion pictures, television, and radio, together with critical analysis of their roles in contemporary culture, leading to an appreciation and understanding of the theater arts. A nontechnical presentation for the general student. P/NP grading.

**102A. Selected Topics on the History of the European Theater.** Lecture, three hours. Prerequisites: course 5A or equivalent and consent of instructor. An investigation in depth of a selected area of study in theater history from the Greeks through the Renaissance. May be repeated twice for credit.

**102B. Selected Topics on the History of the European Theater.** Lecture, three hours. Prerequisites: course 5B or equivalent and/or consent of instructor. An investigation in depth of a selected area of study in theater history from the baroque to the present. May be repeated twice for credit.

**102D. History of the European Theater.** Lecture, three hours. Prerequisite: consent of instructor. Not open for credit to students with credit for more than one course from the 5A, 5B, 5C series. A survey of the development of the theater from the Greeks to the present.

**102E. Theater of the Non-European World.** Lecture, three hours; discussion, one hour. A survey of theater forms of the non-European world in which primary attention is concentrated on an examination and analysis of the traditional dance-drama and puppet theaters of East Asia, Southeast Asia, South Asia, the Middle East, and Africa. Analogous forms from European theater are included for comparative purposes.

**103A. Black People's Theater in America, Slavery to 1930.** Lecture, three hours. An exploration of all extant materials on the history and literature of the theater as developed and performed by Black artists in America from slavery to 1930.

**103B. Black People's Theater in America, 1930 to the Present.** Lecture, three hours. An exploration of all extant materials on the history and literature of the theater as developed and performed by Black artists in America from 1930 to the present.

**M103C. The Origins and Evolution of Chicano Theater.** (Same as Chicano Studies M103C.) Lecture, three hours. Prerequisite: upper division standing. An exploration of the development of Chicano theater from its beginnings in the legends and rituals of ancient Mexico to the work of Luis Valdez (late 1960s). Mr. Zamora

**M103D. Contemporary Chicano Theater.** (Same as Chicano Studies M103D.) Lecture, three hours. Prerequisite: upper division standing. A study of recent trends in Chicano theater as reflected in the works of contemporary Chicano dramatists and theater artists. Mr. Zamora

**104D. History of the American Theater.** (Formerly numbered 104A.) Lecture, three hours. Not open for credit to students with credit for former course 104A prior to Fall Quarter 1981. The history of the American theater from the Revolutionary War to the Civil War.

**104E. History of the American Theater.** Lecture, three hours. Not open for credit to students with credit for former course 104A prior to Fall Quarter 1981. The history of the American theater from the Civil War to WWI.

**104F. History of the American Theater.** (Formerly numbered 104B.) Lecture, three hours. Not open for credit to students with credit for former course 104B prior to Fall Quarter 1981. The history of the American theater from WWI to the present.

**105. Main Currents in Theater.** Lecture, three hours. Critical examination of the leading theories of theater from 1887 to the present. Study and discussion of modern styles of production.

**C117. The Puppet Theater (2 units).** (Formerly numbered 117.) Lecture/laboratory, four hours. Prerequisite: consent of instructor. Not open for credit to students with credit for former course 117. Study of the history and practice of the art of puppetry. An examination of the materials and methods of construction. Staging of puppet productions as laboratory practice. May be repeated twice for credit. Concurrently scheduled with course C217A.

**118A. Creative Dramatics.** Lecture/laboratory. Studies of the principles and procedures of the improvisational approach to drama as done with children from nursery school to junior high.

**118B. Advanced Creative Dramatics (2 units).** Discussion, one hour; laboratory, two hours. Prerequisite: course 118A or consent of instructor. Practical application of the methods and principles introduced in course 118A. May be repeated twice for credit.

**119A. Theater for the Child Audience: Theory and Criticism.** (Formerly numbered 119.) Lecture/laboratory. Not open for credit to students with credit for former course 119. 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 an opportunity for students to work together as an ensemble, creating through improvisation a theater presentation for a young audience. Class sessions focus on testing theoretical concepts through the ensemble work, rehearsal, pretesting, and evaluation of an original production for possible presentation outside the classroom.

**121. Acting Workshop (2 units).** Laboratory, to be arranged. Prerequisites: course 20 and consent of instructor. Courses 160, 161A, 161B, and 161C may be taken concurrently. A workshop which provides students with an opportunity to rehearse, perform, and criticize scenes. May be repeated once for credit.

**122. Makeup for the Stage (2 units).** Prerequisite: consent of instructor. The 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 and consent of instructor. Not open for credit to students with credit for former course 120. Study and practice of the art of acting through the perfecting of techniques and application of those techniques to acting problems.

**124A. Voice for the Stage.** (Formerly numbered 124.) Lecture/laboratory. Prerequisites: course 20 and consent of instructor. Not open for credit to students with credit for former course 124. Development of voice techniques for the stage. Includes work in relaxation, limbering, breathing, articulators, and resonators.

**124B. Speech for the Stage.** Lecture, four hours; laboratory, two hours. Prerequisites: courses 20, 123, 124A (with demonstration of high skills level), 125A, consent of instructor. Open for credit to students with credit for former course 124. Designed to acquaint the student with the international phonetic alphabet and its uses and to exercise the student's skills in pronunciation, enunciation, and the development of diction versatility.

**125A. Movement for the Actor.** Lecture/laboratory. Prerequisites: course 20 and consent of instructor. Physical awareness for the actor, concentrating on warming up the body, relaxation, control, stunts, and gymnastics.

**125B. Advanced Movement for the Actor.** Lecture/laboratory. Prerequisites: course 125A and consent of instructor. An advanced and contemporary approach to classical and modern movement for the stage actor.

**130A. Fundamentals of Playwriting I.** Lecture, three hours. Prerequisite: consent of instructor. Required of theater majors. Designed to stimulate the student's critical and creative faculties through the preparation of original material for the theater. Guidance in the completion of a one-act play.

**130B. Fundamentals of Playwriting II.** Lecture, three hours plus conference. Prerequisites: course 130A and consent of instructor. Study in original material for the theater, its preparation and development. Designed to give further insight into the critical and creating aspects of the short and full-length play and guidance in the completion of the one-act and full-length play. May be repeated twice for credit.

**130C. Writing for the American Musical Theater.** Lecture/laboratory, three hours. Prerequisite: consent of instructor. Study of the 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 and consent of instructor. Principles and practices in the evaluation of manuscripts for theater. May be repeated once for credit.

**136. Advanced Acting for the Stage.** Lecture/laboratory. Prerequisites: courses 123, 124A, 125A, and consent of instructor. Study and practice of the art of acting through a progression to more advanced acting problems. May be repeated twice for credit. Consecutive enrollment with the same instructor is not permitted. The total units for courses 136, 137A-137B-137C, and former course 120 may not exceed twelve units.

**137A-137B-137C. Continuum Study in Acting for the Stage.** Lecture/laboratory. Prerequisites: courses 123, 124A, 125A, and consent of instructor. The technique of characterization and performance in advanced and complex acting styles. The total units from courses 136, 137A-137B-137C, and former course 120 may not exceed twelve units.

**138. Special Problems in Performance Techniques.** Lecture/laboratory. Prerequisites: courses 123, 124A, 125A, and 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 and consent of instructor. Required of theater majors. An intensive study of scenic materials, construction techniques, production organization, and the rigging of scenery. Courses 140A, 141A, and 142A may be taken in any sequence, but not concurrently.

**140B. Advanced Scenery for the Stage.** Lecture/laboratory. Prerequisite: course 140A. Advanced study of technical problems in staging theater productions, including design analysis and planning related to rigging, shifting, and construction techniques.

**141A. Lighting Techniques for the Stage.** Lecture, three hours; laboratory, six hours. Prerequisites: course 10 and consent of instructor. Required of theater majors. An intensive study of theater lighting, with emphasis on the relationship of lighting instruments and control equipment to lighting design. Courses 141A, 140A, and 142A may be taken in any sequence, but not concurrently.

**141B. Advanced Lighting for the Stage.** Lecture/laboratory. Prerequisite: course 141A. The detailed study of stage lighting as an art, with emphasis on design concepts. The interpretation of a script or score through the control of light and color in relation to actor and audience.

**142A. Theater Costuming Techniques.** Lecture, three hours; laboratory, six hours. Prerequisites: course 10 and consent of instructor. Required of theater majors. The study of costume analysis and the interpretation of theatrical costume design through the use of patterns, fabrics, and related costume materials. Courses 142A, 140A, and 141A may be taken in any sequence, but not concurrently.

**142B. Advanced Costuming for the Stage.** Lecture, three hours; laboratory, four hours. Prerequisites: course 142A and consent of instructor. Special problems in the procuring, designing, construction, and management of costumes used in theatrical productions.

**143. Scenic Design for the Theater.** Prerequisites: course 10 and consent of instructor. Required of theater majors. Basic principles of design as applied to the interpretation and presentation of the visual aspects of dramaturgy. Study of styles, techniques, and methods of design for the theater arts. The translation of ideas into visual forms.

**144A. Theater Sound Techniques (2 units).** Lecture, two hours; laboratory, two hours. Prerequisite: course 10 or an approved equivalent. A study of the equipment and techniques utilized in the recording and reproduction of sound for the theater.

**144B. Advanced Theater Sound.** Lecture, three hours; laboratory, four hours. Prerequisite: course 144A or consent of instructor. A detailed study of theater sound, with emphasis on the composition and execution of theater sound tracks, recording techniques, and acoustic reinforcement.

**145. Costume Design for the Theater.** Lecture/laboratory. Prerequisite: consent of instructor. Design of costumes for theatrical presentations. The study of the use of silhouette, fabrics, color, and decoration as related to theatrical characterizations.

**C146. Scene Painting Techniques (2 units).** (Formerly numbered 146.) Lecture/laboratory, three hours. Prerequisite: consent of instructor. Not open for credit to students with credit for former course 146. The study of scenic painting techniques and materials and their relation to the realization of color design and elevations. May be repeated once for credit. Concurrently scheduled with course C446.

**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.

**149A. Basic Drafting Techniques for the Stage (2 units).** Lecture/laboratory, four hours. Prerequisite: course 10 or consent of instructor. Studies of the basic skills and techniques of drafting for the stage through the execution of floor plans and elevation drawings.

**149B. Advanced Drafting for Theater Arts.** Lecture/laboratory. Prerequisite: course 149A or consent of instructor. An advanced course in the technical sketching and drafting of working drawings essential in the development of the design of sets and properties for theater, television, and motion picture productions.

**160. Fundamentals of Play Direction.** (Formerly numbered 160A.) Lecture/laboratory. Prerequisite: consent of instructor. Required of theater majors. Course 161A may be substituted for this requirement (if substituted, an additional two upper division units are required). Course 121 may be taken concurrently. Basic theories of play direction and their application through the preparation of scenes under rehearsal conditions.

**161A. Continuum in Directing for the Stage (2 units).** Lecture/laboratory, six hours. Prerequisite: consent of instructor. Course 121 may be taken concurrently. The intensive development of primary directing skills and process, including text analysis and the exploration of craft fundamentals as a basis for director-actor communication and effective staging. The student works in proscenium configuration with scenes drawn from plays of American realism. May be applied toward the major requirement in directing.

**161B. Continuum in Directing for the Stage.** Lecture/laboratory, six hours. Prerequisites: course 160 or 161A and consent of instructor. Course 121 may be taken concurrently. The further development of craft elements of directorial method, with additional emphasis on the psychological aspects of director-actor communication. The student works in arena and proscenium configurations with scenes drawn from the period of early realism through expressionism.

**161C. Continuum in Directing for the Stage (6 units).** Lecture/laboratory, six hours. Prerequisites: course 161B and consent of instructor. Course 121 may be taken concurrently. Working in three-quarter and environmental configurations, the student director explores problems of style in production by staging scenes drawn from period plays (Greek through Romantic eras) and from contemporary, nonrealistic plays.

**162A. Intermediate Play Direction.** (Formerly numbered 160B.) Lecture/discussion, two hours; laboratory, eight hours. Prerequisites: course 160 or 161A and consent of instructor. Not open for credit to students with two units credit for former course 160B. A course in the application of stage direction techniques to the one-act play. Each student directs a one-act play to be performed under rehearsal conditions. Material is drawn from published sources.

**162B. Advanced Play Direction.** (Formerly numbered 161.) Lecture, four hours; laboratory, six hours. Prerequisites: course 160 or 161A and consent of instructor. Special problems in the direction of original one-act plays under production conditions. May be repeated once for credit by consent of instructor.

**170. Theater Laboratory.** Lecture, four hours; laboratory, eight hours. Prerequisites: courses 140A, 141A, 142A, 143, and consent of instructor. Required of theater majors. Laboratory in theater production under supervision. The translation of ideas and concepts into the dramatic form.

**171A. Advanced Theater Laboratory (2 or 4 units).** Hours to be arranged. Prerequisite: consent of instructor. Creative participation as an actor or stage manager in the public presentation of departmental productions. May be taken for a maximum of four units.

**171B. Advanced Theater Laboratory (2 or 4 units).** Hours to be arranged. Prerequisite: consent of instructor. Creative participation in the realization of production elements related to the 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. A 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.

**174. Techniques of Stage Managing (2 units).** The professional duties of the stage manager. The problems of unions, professional auditions, organization, scheduling, out-of-town openings, Broadway openings, and the responsibilities of a lengthy run.

**C190A. The Role of the Producer in the Professional Theater (2 units).** (Formerly numbered 190A.) Not open for credit to students with credit for former course 190A. A study of the structure governing the economic and artistic decision making processes in the professional theater of America. Concurrently scheduled with course C294A.

**C190B. The Role of Management in the Educational and Community Theater (2 units).** (Formerly numbered 190B.) Not open for credit to students with credit for former course 190B. A study of the artistic, social, and economic criteria in the administration of educational and community theater. Concurrently scheduled with course C294B.

**191. The Touring Company (8 or 12 units).** Lecture, twenty hours; laboratory, twenty-two hours. Prerequisite: consent of instructor. Rehearsal and technical preparation of a theatrical work for touring and the performance of that work on tour.

## Motion Picture/Television Areas

**106A. History of the American Motion Picture.** Lecture/screenings, eight hours; discussion, one hour. A 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 by departmental consent and with topic change.

**106B. History of the European Motion Picture.** Lecture/screenings, eight hours; discussion, one hour. A 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 by departmental consent and with topic change.

**106C. History of African, Asian, and Latin American Film.** Lecture/screenings, eight hours; discussion, one hour. A critical, historical, aesthetic, and social study — together with an exploration of the ethnic significance — of Asian, African, Latin American, and Mexican films.

**106D. The Development of Film in Europe and the United States from WWI through the Depression.** Lecture/screenings, eight hours; discussion, one hour. An interdisciplinary and comparative approach to the development of film in Europe and the United States from the silent era through the Depression. Particular emphasis on the interrelationship of film with its historical context and the social dimensions of film structure, aesthetics, and language.

**106E. The Development of Film in Europe and the United States from WWII to the Present.** Lecture/screenings, eight hours; discussion, one hour. Course 106D is not prerequisite to 106E. An interdisciplinary and comparative approach to the development of film in Europe and the United States from the end of the 1930s to the present. Particular emphasis on the interrelationship of film with its historical context and the social dimension of film structure, aesthetics, and language.

**107. Experimental Film.** Lecture/screenings, eight hours; discussion, one hour. A study and analysis of unconventional developments in the motion picture.

**108. History of Documentary Film.** Lecture/screenings, eight hours; discussion, one hour. Prerequisite: consent of instructor. The philosophy of the documentary approach in the motion picture. The development of critical standards and an examination of the techniques of teaching and persuasion used in selected documentary, educational, and propaganda films.

**109. Introduction to Film and Television Study.** Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. Required of motion picture/television majors in the first quarter of residency and recommended as a prerequisite to other motion picture/television history and criticism courses. Introduction to the major principles and concepts that organize film and television studies, including author, work, style, genre, structure, and ideology, with special attention to the approaches and procedures involved in a critical reading of a work.

**110A. History of Broadcasting.** Lecture/viewing, six hours; discussion, one hour. Prerequisite: consent of instructor. Critical survey of broadcasting here and abroad. Consideration of the 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 the current issues and problems related to public and commercial broadcast programming and management, including analysis of contemporary criticism of the broadcast media.

**111. Film Distribution and Exhibition.** Lecture, three hours; laboratory, to be arranged. Prerequisite: consent of instructor. History and theory of organization of theatrical and nontheatrical distribution and exhibition of motion pictures and analysis of their interrelationships with production practices.

**112. Film and Social Change.** Lecture/screenings, eight hours; discussion, one hour. The development of documentary and dramatic films in relation to and as a force in social development.

**113. Film Authors.** Lecture/screenings, eight hours; discussion, one hour. An in-depth study of a specific film author (director or writer). May be repeated once for credit by departmental consent and with topic change.

**114. Film Genres.** Lecture/screenings, eight hours; discussion, one hour. Study of a specific film genre (e.g., the Western, the gangster cycle, the musical, the silent epic, the comedy, the social drama). May be repeated once for credit by departmental consent and with topic change.

**115. Producers and Their Films.** Lecture/screenings, eight hours; discussion, one hour. A consideration of the individual or corporate producers as they have affected the art and industry of the motion picture. Content varies and considers the work of a studio such as Paramount, Metro-Goldwyn-Mayer, Warner Brothers, etc. or of an individual such as Samuel Goldwyn, Stanley Kramer, Hal Wallis, etc. May be repeated once for credit.

**116. Criticism.** Lecture, four hours; laboratory, to be arranged. Study of and practice in criticism for the theater, motion pictures, and television. May be repeated once for credit by departmental consent and with topic change.

**126A. Advanced Acting for Television and Motion Pictures.** Laboratory, six hours. Prerequisite: course 20 or consent of instructor. Projects in acting for television and motion pictures. Videotape recording of selected acting exercises and readings. May be repeated twice for credit.

**126C. Sportscasting.** Lecture, two hours; laboratory, four hours. Prerequisite: consent of instructor. Intensive study of sportscasting; laboratory emphasis on studio and field training; videotaping and playback of straight sportscasts, play by play, color, interviews, commentary, and editorials. Students are required to write original material for all exercises. Extensive training re hand held field equipment; use of the remote truck. Field exercises. Students rotate in production positions. May be repeated twice for credit.

**127. The Film Image.** Lecture, one hour; discussion, two hours; laboratory, one hour. Prerequisite: consent of instructor. Proseminar in the craft of film aesthetics. The visual revolution. Biophysical nature of perception. Lenses, perspective, graphic styles. Principles of composition, screenwriting, sound, editing. Problems of time and movement. How a director views his work and his world.

**128. Media and Ethnicity.** Prerequisite: consent of instructor. Utilizing the Asian American experience, the course explores the impact and uses of media on contemporary American ethnic communities. Role and techniques of media influence besides community utilization and production are studied.

**131. Nontheatrical Motion Picture/Television Writing.** Discussion, three hours. Prerequisite: consent of instructor. A course in the research and writing of documentary, technical, educational, industrial, and propaganda scripts. May be repeated twice for credit.

**133. Script Analysis.** Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. Limited to motion picture/television majors. The considerations and practices in the evaluation of scripts written for motion picture or television production.

**134A. Motion Picture/Television Writing.** (Formerly numbered 134.) Discussion, three hours. Prerequisite: consent of instructor. Not open for credit to students with credit for former course 134. Introduces students to problems in motion picture/television writing.

**134B. Fundamentals for Motion Picture/Television Writing (2 units).** Lecture, one hour. Corequisite for graduate students enrolled in course 134A. An examination of screenwriting fundamentals: structure, character and scene development, conflict, locale, theme, history of drama. Review of authors such as Aristotle, Egri, Bentley.

**135. Advanced Motion Picture/Television Writing (8 units).** Discussion, three hours. Prerequisites: course 134A and/or consent of instructor. A course in motion picture/television writing. Original motion picture/television material to be developed. May be repeated twice for credit. (F,W,Sp)

**150. Basic Motion Picture Photography.** (Formerly numbered 150A.) Lecture, three hours; laboratory, four hours. Prerequisites: course 166, consent of instructor. Limited to motion picture/television majors. Not open for credit to students with credit for former course 150A. 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 the lecture.

**151. Design for Motion Pictures and Television.** Lecture, three hours; laboratory, to be arranged. Prerequisite: consent of instructor. Limited to motion picture/television majors. The techniques of art direction. May be repeated twice for credit (if repeated, the student is required to design and complete a short film).

**152. Motion Picture/Television Sound Recording.** (Formerly numbered 152A.) Lecture, three hours; laboratory, to be arranged. Prerequisite: course 166. Limited to motion picture/television majors. Not open for credit to students with credit for former course 152A. Introduction to principles and practices of motion picture and television sound recording, including supervised exercises.

**153C. Color Cinematography.** Lecture, three hours. Prerequisite: consent of instructor. History and theories of color photography, with emphasis on present-day methods in motion picture and television production. A comparative study of additive and subtractive systems as employed by Technicolor, Ansco, Kodak, and others.

**154. Motion Picture Editing.** (Formerly numbered 154A.) Lecture, three hours; laboratory, to be arranged. Prerequisites: course 166, consent of instructor. Limited to motion picture/television majors. Not open for credit to students with credit for former course 154A. Introduction to the artistic and technical problems of film editing, with practical experience in the editing of image and synchronous sound.

**164. Direction for Motion Pictures.** Laboratory, to be arranged. Prerequisites: course 166, consent of instructor. A study of the problems faced by a motion picture director and various approaches to their solution. May be repeated twice for credit.

**165. Direction for Television.** Laboratory, six hours. Prerequisites: courses 134A, 166, 185, consent of instructor. Instruction and supervised exercises in television direction, with emphasis on the creative use of cameras, sound, composition, and communication with those in front of and behind the camera. May be repeated twice for credit.

**166. Undergraduate Production I (8 units).** Lecture/discussion, four hours; laboratory, eight hours; other, four hours. Prerequisite: consent of instructor. Limited to and required of motion picture/television majors. Not open for credit to students with credit for former course 179A. The completion of one or more short films, including their writing, production, and editing. May not be repeated.

**176A-176B. Undergraduate Production II (8 units each).** Discussion, three hours; laboratory, to be arranged. Prerequisites: course 166, consent of production faculty. Limited to motion picture/television majors. Not open for credit to students with credit for former courses 179B, 179D, or 179E. The completion of a motion picture, television, or video production, including its writing, production, and editing. May not be repeated.

**177. Motion Picture/Television Acting Workshop (2 or 4 units).** Laboratory, to be arranged. Prerequisite: consent of instructor. A workshop providing opportunities for students to rehearse, perform, and evaluate their scenes under the supervision and criticism of the instructor.

**178. Technical Motion Picture/Television Laboratory (2 or 4 units).** Laboratory, to be arranged. Prerequisite: consent of instructor. Limited to motion picture/television majors. A laboratory of various aspects of motion picture/television production. May be repeated for a maximum of twelve units, but only eight units may be applied toward the motion picture/television major.

**180A-180B-180C. Workshop in Broadcast News and Documentary.** Discussion, three hours; laboratory, five hours. Prerequisite: consent of instructor. Instruction and supervised exercises in writing, reporting, editing, and producing radio and television news, public affairs, and documentary programs.

**181A. Animation Design in Theater Arts.** Lecture, three hours; laboratory, three hours. Prerequisite: consent of instructor. History and use of speech, rhythm, and graphic design to form effective communication on film.

**181B. Writing for Animation (4 or 8 units).** Lecture, six hours; laboratory, to be arranged. Prerequisites: course 181A, consent of instructor, and a storyboard at the first class meeting. Research and practice in creative writing and planning for the animated film. May be repeated for a maximum of sixteen units.

**181C. Animation Workshop (4 or 8 units).** Lecture, six hours; laboratory, to be arranged. Prerequisites: course 181A, consent of instructor, and a storyboard at the first class meeting. Organization and integration of the various creative arts used in animation to form a complete study of a selected topic. May be repeated for a maximum of sixteen units.

**182. Introduction to Video Production (8 units).** Lecture, four hours; discussion, four hours; laboratory, to be arranged. Prerequisite: consent of instructor. Limited to motion picture/television majors. An introduction to the techniques, processes, and equipment used in video production, culminating in a short project each student originates.

**185. Beginning Television and Video Production (8 units).** Laboratory, sixteen hours. Prerequisite: consent of instructor. Limited to and required of motion picture/television majors. Not open for credit to students with credit for former course 185. Instruction and exercises in the basic techniques of television and video production, including class participation in campus broadcasts.

**187A-187B-187C. Remote Television Broadcasting.** Laboratory, three hours (additional hours to be arranged). Prerequisites: course 185, consent of instructor. Instruction and supervised exercises in the planning and production of remote on-location television programs.

**189. Overview of the 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 the influence of social and economic pressures that contributed to the changing financial, distribution, and exhibition practices.

**192. Motion Picture, Television, and Theater Internship (2, 4, or 8 units).** Field experience, eight, sixteen, or twenty-four hours; individual conferences, to be arranged. Prerequisite: consent of instructor. Limited to senior Department of Theater Arts majors. An internship at various studios or theaters accentuating the creative contribution, organization, and work of professionals in their various specialties. May be repeated for a maximum of eight units.

**193A. Film Curatorship.** Lecture, two hours; discussion, two hours; laboratory, four hours. Prerequisite: consent of instructor. Study of the principles and techniques of film curatorship and research, including but not limited to acquisitions, cataloging, storage, and retrieval systems. Special attention to the 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 the principles and techniques of television curatorship and research, including but not limited to acquisitions, cataloging, storage, and retrieval systems. Special attention to the application of new technology, equipment, and program materials to television archival-library design for research and teaching.

**195. Independent Production of Feature Films.** Lecture, three hours. Prerequisites: course 189 and consent of instructor. Survey of financial and business aspects involved in packaging, distributing, and exhibiting motion pictures today from the various perspectives of prominent industry leaders. May be repeated once for credit by departmental consent and with instructor change.

**196. Senior Colloquium.** Lecture, three hours. Prerequisites: consent of instructor, senior standing. An advanced seminar investigating special topics in film and television studies (i.e., style, modes of adaptation, media and social effects, etc.).

## Special Studies

**199. Special Studies in Theater Arts (2 to 8 units).** Hours to be arranged. Prerequisites: senior standing, 3.0 GPA in major, and 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 Theater Arts:

Section 1. Theater.

Section 2. Motion Pictures.

Section 3. Television/Radio.

**202A. Seminar in Western Classical Theater.** Discussion, three hours. Prerequisites: graduate standing and consent of instructor. An examination of theatrical production and dramatic form in the Greek and Roman periods. May be repeated twice for credit.

**202B. Seminar in Medieval Theater.** Discussion, three hours. Prerequisites: graduate standing and consent of instructor. Selected studies of theatrical production and dramatic form in the Middle Ages. May be repeated twice for credit.

**202C. Seminar in Renaissance and Baroque Theater.** Discussion, three hours. Prerequisites: graduate standing and 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 in Bourgeois and Romantic Theater.** Discussion, three hours. Prerequisites: graduate standing and 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 on the Modern Consciousness in Theater.** Discussion, three hours. Prerequisites: graduate standing and consent of instructor. Study of the prototypes of modern experience as encountered in the work of Ibsen and Strindberg. May be repeated twice for credit.

**202F. Seminar in Modern Realism.** Discussion, three hours. Prerequisites: graduate standing and consent of instructor. Selected studies of the theater's response to science and technology, politics, and revolution. May be repeated twice for credit.

**202G. Seminar in Modern Theatricalism.** Discussion, three hours. Prerequisites: graduate standing and consent of instructor. Selected studies in symbolism and the avant-garde theater. Exploration of the dream experience and the private psyche, the religious experience, and the revitalization of myth and ritual. May be repeated twice for credit.

**202M. Seminar in American Theater.** Discussion, three hours. Prerequisites: graduate standing and consent of instructor. Selected studies in the development of theatrical production and dramatic writing in the American theater. May be repeated twice for credit.

**202N. Seminar in Theater Architecture and Scenic Design.** Discussion, three hours. Prerequisites: graduate standing and consent of instructor. Selected studies of the playhouse and scenic environment, relating historic and contemporary concepts. May be repeated twice for credit.

**202P. Seminar in Traditions of African Theater.** Discussion, three hours. Prerequisites: graduate standing and 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 an examination of character, structure, performance modes, and archetypes. May be repeated twice for credit.

**202R. Seminar in East Asian Theater.** Discussion, three hours. Prerequisites: graduate standing and consent of instructor. Selected topics in the theater forms of East Asia, including dramatic literature, costume, theater spaces, and critical writings. May be repeated twice for credit.

**202S. Seminar in South Asian Theater.** Discussion, three hours. Prerequisites: graduate standing and consent of instructor. Selected topics in the theater forms of South Asia, including dramatic literature, costume, theater spaces, and critical writings. May be repeated twice for credit.

**202T. Seminar in Southeast Asian Theater.** Discussion, three hours. Prerequisites: graduate standing and consent of instructor. Selected topics in the theater forms of Southeast Asia, including dramatic literature, costume, theater spaces, and critical writings. May be repeated twice for credit.

**203. Seminar in Film and the Other Arts.** Discussion, three hours (additional hours as required). Prerequisites: graduate standing and consent of instructor. Studies in the interrelationships between film and the fine arts, or performing arts, or literature, with emphasis on the ways these other arts have influenced film. May be repeated twice for credit.

**205A. The Background of Theatrical Art.** Discussion, three hours. Prerequisites: graduate standing and consent of instructor. An analysis of major plays, commentaries, and historical materials from the classical and medieval periods.

**205B. The Background of Theatrical Art.** Discussion, three hours. Prerequisites: graduate standing and consent of instructor. An analysis of major plays, commentaries, and historical materials from the Renaissance, baroque, and rococo periods.

**205C. The Background of Theatrical Art.** Discussion, three hours. Prerequisites: graduate standing and consent of instructor. An analysis of major plays, commentaries, and historical materials from the Romantic, naturalistic, and symbolist periods.

**206A. Seminar in European Motion Picture History.** Discussion, three hours (additional hours as required). Prerequisites: course 106B, graduate standing, and 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 in American Motion Picture History.** Discussion, three hours (additional hours as required). Prerequisites: course 106A, graduate standing, and consent of instructor. Study of central topics in American film history. May be repeated twice for credit.



**208A. Seminar in Film Structure.** Discussion, three hours (additional hours as required). Prerequisites: graduate standing and consent of instructor. An examination of various film conventions, both fictional and nonfictional, and of the role of structure in the motion picture.

**208B. Seminar in Classical Film Theory.** Discussion, three hours (additional hours as required). Prerequisites: graduate standing and consent of instructor. A study of the principal topics and lines of inquiry that characterize the theoretical writings of Arnheim, Eisenstein, Bazin, Mitry, etc.

**208C. Seminar in Contemporary Film Theory.** Discussion, three hours (additional hours as required). Prerequisites: course 208B, graduate standing, and consent of instructor. A study of the redefinition of the aims and methods of film theory through contemporary writings.

**209A. Seminar in Documentary Film.** Discussion, three hours (additional hours as required). Prerequisites: graduate standing and consent of instructor. The nonfictional film and its relation to contemporary culture.

**209B. Seminar in Fictional Film.** Discussion, three hours (additional hours as required). Prerequisites: graduate standing and consent of instructor. Film as fiction and its relation to contemporary culture. May be repeated once for credit.

**M209C. Ethnographic Film.** (Same as Anthropology M247A.) Lecture/discussion, four hours; laboratory, to be arranged. Prerequisites: graduate standing and consent of instructor. Discussion of the history, methods, and criteria for the use of film as a medium for the preservation and communication of human cultures. Filming assignments are given to increase the understanding of the theoretical and practical aspects of ethnographic filming. The potential of both film and video for fieldwork is considered. (F)

**209D. Seminar in the Animated Film.** Discussion, three hours; laboratory, three hours. Prerequisite: consent of instructor. A critical study of the animated film: its historical development and its structure, style, and use.

**210. Seminar in Contemporary Broadcast Media.** Discussion, three hours (additional hours as required). Prerequisites: graduate standing and 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 in Historiography.** Discussion, three hours. Prerequisites: graduate standing and consent of instructor. Limited to motion picture/television M.A. candidates. Beginning examination of the function and methods of writing film and television history as seen in the works of key historians in the United States and Europe.

**211B. Seminar in Historiography.** (Formerly numbered 211.) Discussion, three hours. Prerequisites: graduate standing and consent of instructor. Limited to motion picture/television Ph.D. candidates. Examination of the 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 in Theory and Method.** Discussion, three hours. Limited to motion picture/television Ph.D. candidates. An examination of the 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.

**216A. Critical and Historical Methods.** Discussion, three hours. Prerequisites: graduate standing and consent of instructor. Studies in theater historiography and sociological criticism.

**216B. Critical Methods.** Discussion, three hours. Prerequisites: graduate standing and consent of instructor. Studies in critical theories of theatrical form and structure.

**216C. Critical Methods.** Discussion, three hours. Prerequisites: graduate standing and consent of instructor. Studies in contemporary modes of psychoanalytic and archetypal criticism for the theater.

**C217A. Research and Practice in Puppet Theater (2 units).** Laboratory, four hours. Prerequisites: graduate standing and consent of instructor. Not open for credit to students with credit for former course 117. Study of the history and practice of the art of puppetry. An examination of the materials and methods of construction. May be repeated twice for credit. Concurrently scheduled with course C117. Graduate students are required to present a "one-person" show of no less than fifteen minutes, with puppets constructed and developed for the particular show (Fall Quarter, hand puppets; Winter Quarter, rod puppets, Spring Quarter, shadow puppets). Students develop the show concept with the advice of the instructor.

**M217B. Seminar in the Puppet Theater.** (Formerly numbered M217.) (Same as Folklore M219.) Lecture, three hours. Prerequisite: consent of instructor. Studies in the puppet theaters of the world: techniques, literature, aesthetics.

**219. Seminar in Film and Society.** Discussion, three hours (additional hours as required). Prerequisites: graduate standing and consent of instructor. Study of the ways film affects and is affected by social behavior, belief, and value systems; considered in relation to the role of media in society. May be repeated once for credit.

**220. Seminar in Television and Society.** Discussion, three hours (additional hours as required). Prerequisites: graduate standing and consent of instructor. Study of the ways television forms affect and are affected by social behavior, belief, and value systems; study of the technological and economic aspects of the medium. May be repeated once for credit.

**221. Seminar in Film Authors.** Discussion, three hours (additional hours as required). Prerequisites: graduate standing and consent of instructor. Intensive examination of the works of outstanding creators of films. May be repeated twice for credit.

**222. Seminar in Film Genres.** Discussion, three hours (additional hours as required). Prerequisites: graduate standing and 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 in Visual Perception.** Discussion, three hours (additional hours as required). Prerequisites: graduate standing and consent of instructor. The aesthetic, psychological, and physiological principles of vision as they relate to the ways in which man "sees" film and television, with emphasis on the ways in which these are different from other visual experiences.

**230A-230B-230C. Advanced Playwriting.** Lecture, three hours. Prerequisites: course 130A, graduate standing, and consent of instructor. Guided completion of a full-length play, or study and preparation for the writing of a thesis play.

**232. Manuscript Analysis.** Lecture, three hours. Prerequisites: graduate standing and 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.

**240. The Contemporary Playhouse.** Discussion. Prerequisites: graduate standing and consent of instructor. Advanced study of the concept, form, and function of the contemporary playhouse and its equipment.

**241. Research in Technical Theater.** Prerequisites: graduate standing and consent of instructor. Research in technical processes and equipment in theater.

**243A-243B-243C. Advanced Problems in Design for the Theater.** Prerequisites: graduate standing and consent of instructor. Advanced study and practice in the design of stage productions. Determination of approach and style in scenic design.

**244A. Advanced Theater Laboratory (2 or 4 units).** Laboratory, to be arranged. Prerequisites: graduate standing and consent of instructor. Creative participation as an assistant director, stage manager, or performer in the 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 and consent of instructor. Creative participation in the realization of production elements related to the public presentation of departmental productions. May be taken for a maximum of four units.

**245A-245B. Production Planning in Theater.** Lecture, two hours; laboratory, two hours. Prerequisites: graduate standing and consent of instructor. Development of planning procedures through the execution of a complete plan for producing a multiscene production. Courses must be taken in sequence.

**247. Production Planning in Motion Pictures/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.

**M265A-M265B. Ethnographic Film Direction (4 or 8 units each).** (Same as Anthropology M267B-M267C.) Lecture, four hours; laboratory, to be arranged. Prerequisites: course M209C, graduate standing, and consent of instructor. Further consideration of the methods and criteria for the use of film as a medium for the preservation of communication of human cultures. Production of films and videotapes on topics chosen by students.

(W, M265A; Sp, M265B)

**268. Seminar in the Short Film.** Lecture, two hours; discussion, two hours. Prerequisites: graduate standing and consent of instructor. A study of the problems presented by the conceptualization of the form and structure of the short film, with classical and student examples.

**270. Seminar in Film Criticism.** Discussion, three hours (additional hours as required). Prerequisites: graduate standing and consent of instructor. A 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 in Television Criticism.** Discussion, three hours (additional hours as required). Prerequisites: graduate standing and consent of instructor. An analysis of major forms of television production and the criticism it has elicited. May be repeated once for credit.

**C272. Production and Performance Laboratory (2 units).** (Formerly numbered C272A-C272B-C272C.) Lecture, three hours; laboratory, to be arranged. Prerequisites: graduate standing and consent of instructor. Credit for creative production assignments required of all M.A. students during the first three quarters of residence. May be repeated twice for credit. Concurrently scheduled with courses C172 and C472.

**273. Seminar in Contemporary Film and Television Criticism.** Discussion, three hours (additional hours as required). Limited to motion picture/television Ph.D. candidates. Study and practice of the analytic and critical response, with emphasis on contemporary film and television.

**274. Seminar in Research Design.** Discussion, three hours. Prerequisite: second-year standing in the motion picture/television Ph.D. program. An examination of the general principles that govern the formulation of major research projects and the preparation of a prospectus for the Ph.D. dissertation.

**276. Seminar in Non-Western Films.** Discussion, three hours (additional hours as required). Prerequisites: graduate standing and consent of instructor. Study of the aesthetic and ideological impulses of selected films from Asia, Africa, and Latin America.



**277. Seminar in Narrative Studies.** Discussion, three hours (additional hours as required). Prerequisites: graduate standing and consent of instructor. A study of the writings on the theory of narrative structure and their significance for analysis of film forms.

**288. Seminar in Instructional Television.** Discussion, three hours (additional hours as required). Prerequisites: graduate standing and consent of instructor. A historical survey and critical analysis of public, educational, and instructional television. A laboratory course requiring the preparation of a program plan.

**289. Current Business Practices in Motion Picture/Television.** Discussion, three hours. Prerequisites: course 247, graduate standing, and consent of instructor. Examination of current status of financing-production-distribution agreements, union agreements, music, copyright, etc., necessary to an understanding of the motion picture/television industry. May be repeated twice for credit.

**290A. The Role of Management in Artistic Decision Making in the Theater.** Prerequisite: consent of instructor. A descriptive study of the criteria for decision making in artistic institutions, including the role of the institution in society, the economic environment of the arts, and the artistic value systems of arts organizations.

**290B. Programming and Planning Policies in the Theater.** Prerequisite: consent of instructor. An analysis of the social, artistic, and economic roles of the arts as reflected in programming policy. An examination of the social goals pursued in establishing relationships between the arts and their environment.

**291. The Role of Management in Motion Pictures.** Prerequisites: course 247, graduate standing, and consent of instructor. A study of the artistic, social, and economic criteria for decision making in the production and distribution of motion pictures. May be repeated twice for credit.

**292. Network Television Management and Decision Making.** Discussion, three hours. Prerequisites: course 247, graduate standing, and consent of instructor. A study of the business structure and the economic, social, and artistic criteria currently utilized by network television management. May be repeated once for credit.

**293. Seminar in Film and Television Curatorship.** Discussion, three hours (additional hours as required). Prerequisites: graduate standing and consent of instructor. Study and practice of issues in archival research and administration.

**C294A. Artistic Control of Theatrical Production by the Professional Producer (2 units).** Prerequisites: graduate standing and consent of instructor. Not open for credit to students with credit for former course 190A. A study of the structure governing the economic and artistic decision making processes in the professional theater of America and the historical development of the involvement of the producer in the artistic process. Concurrently scheduled with course C190A. Additional research and writing are required of graduate students.

**C294B. The Organization and Operation of Community Theater (2 units).** Prerequisites: graduate standing and consent of instructor. Not open for credit to students with credit for former course 190B. A study of the artistic, social, and economic criteria in the administration of educational and community theater, with research in the 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 and consent of instructor. Seminar study of problems in theater arts, organized on a 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. A teaching apprenticeship under the 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.

**417. Production Project for the Puppet Theater (8 units).** Laboratory, thirty hours; consultation, five hours. Prerequisite: consent of instructor. Limited to M.F.A. candidates. The design, construction, and performance of a full-length production with puppets as the culminating exercise for candidates for the M.F.A. degree in puppet theater. Students are expected to present the full argument for the design style and techniques used in the construction of the puppets, the rationale for the use of puppets for the particular project presented, and a final justification and analysis of the completed work.

**420A. Advanced Techniques in Acting.** Lecture/laboratory, six hours. Prerequisite: consent of instructor. Limited to M.F.A. acting candidates in theater. Exercises in sense memory, personalization, and objectives to help the student respond truthfully to real and imaginary stimuli by developing concentration, awareness, imagination, and spontaneity.

**420B. Advanced Techniques in Acting.** Lecture/laboratory, six hours. Prerequisite: consent of instructor. Limited to M.F.A. acting candidates in theater. Extended work in improvisations and exercises in order to apply these techniques to a role. Beginning with monologues, the work progresses to two-person scenes. Through these efforts the student begins to personalize the character's emotional needs and drives.

**420C. Advanced Techniques in Acting.** Lecture/laboratory, six hours. Prerequisite: consent of instructor. Limited to M.F.A. acting candidates in theater. Preparation and presentation of two-person scenes utilizing sensory work and "objectives" on a more refined basis. Students are able to find the similarities and differences between themselves and the characters and able to play these elements truthfully and spontaneously.

**421A. Advanced Projects in Acting (4 or 8 units).** Lecture/laboratory, six hours. Prerequisite: consent of instructor. Limited to M.F.A. acting candidates in theater. Preparation, presentation, and critique of scenes. Systematic role analysis and exercises in acting.

**421B. Advanced Projects in Acting (4 or 8 units).** Lecture/laboratory, six hours. Prerequisite: consent of instructor. Limited to M.F.A. acting candidates in theater. Preparation, presentation, and critique of scenes. Systematic role analysis and exercises in acting.

**421C. Advanced Projects in Acting (4 or 8 units).** Lecture/laboratory, six hours. Prerequisite: consent of instructor. Limited to M.F.A. acting candidates in theater. Class exercises in acting. Preparation and presentation of roles under performance conditions.

**423. Direction of Actors for Motion Pictures/Television.** Lecture/laboratory. Prerequisites: first film project and consent of instructor. Exercise in analysis of script and character for the purpose of directing actors in motion picture and television productions. Emphasis on eliciting the best possible performance from the actor. May be repeated twice for credit.

**424A-424B-424C. Advanced Techniques in Voice for the Stage (2 units each).** Lecture/laboratory. Prerequisite: consent of instructor. Limited to M.F.A. acting candidates in theater. Development of voice techniques for the stage. Includes work on relaxation, limbering, breathing, articulators, and resonators. Special vocal problems for the actor.

**424D-424E-424F. Special Problems in Voice for the Actor (2 units each).** Lecture/laboratory. Prerequisite: consent of instructor. Limited to M.F.A. acting candidates in theater. An extension of the first-year work, with increased demands on voice. Range and breathing capacity extension. Articulation and the phonetic alphabet. Advanced voice problems.

**425A-425B-425C. Advanced Techniques in Movement for the Stage (2 units each).** Lecture/laboratory. Prerequisite: consent of instructor. Limited to M.F.A. acting candidates in theater. Physical awareness for the actor. Special emphasis on warming up the body, relaxation, gymnastics (balance, falls, stunts), movement techniques, and stage combat.

**425D-425E-425F. Special Problems in Movement for the Actor (2 units each).** Lecture/laboratory. Prerequisite: consent of instructor. Limited to M.F.A. acting candidates in theater. Physical awareness for the actor, concentrating on individual problems in terms of space, movement, and time. Special emphasis on natural rhythms, relaxation, and balance.

**430A-430B-430C. Advanced Studies in Playwriting (4 units, 8 units, 4 units).** Seminar, to be arranged. Prerequisites: courses 230A-230B-230C and consent of instructor. Guidance in the completion of thesis plays.

**432. Manuscript Evaluation.** Lecture, four hours; laboratory, to be arranged. Prerequisites: course 132 and consent of instructor, or candidate in M.F.A. writing program and consent of instructor. Evaluation of manuscripts of beginning writers, including but not limited to those produced in course 134A. May be taken twice for credit (once each year of M.F.A. residence).

**434. Advanced Motion Picture/Television Writing (8 units).** Discussion, three hours. Prerequisites: course 135 and consent of instructor. Advanced problems in the writing of original motion picture/television material. May be repeated twice for credit.

**435A. Writing Scenes for Production.** Discussion, three hours; laboratory, six hours. Prerequisites: graduate standing and consent of instructor. In coordination with direction and photography courses, students write, cast, rehearse, and produce scenes on videotape.

**435B. Writing for the Short Film.** Discussion, three hours. Prerequisites: graduate standing and consent of instructor. The writing and revisions of a script, or scripts, for a short film (approximately 10 to 60 minutes in length).

**436. Script to Film.** Discussion, three hours. Prerequisites: graduate standing and consent of instructor. The examination of all written material involved in creating a script of a major production and comparing these with the completed film.

**437. Nontheatrical Writing for Motion Picture/Television.** Discussion, three hours. Prerequisite: consent of instructor. Advanced problems in the field of documentary and special feature programs, with emphasis on research and preproduction.

**442A-442B-442C. Advanced Problems in Costume Design.** Lecture/discussion. Prerequisite: consent of instructor. Limited to M.F.A. candidates. Study of costume design for theatrical productions. Development of costume designs from theatrical scripts, with emphasis on production styles and character revelation. The scripts vary in period and style to give design practice in the major costume periods and artistic styles.

**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 the theater. May be repeated for a maximum of twelve units.

**444. The Development of Costume Design Construction Technologies for Theater.** Discussion, two hours; laboratory, two hours. Prerequisite: consent of instructor. Limited to M.F.A. candidates. A study of the effect of artistic and stylistic ideas on the mode and dress of men and women. May be repeated twice for credit.

**C446. Research and Practice in Scene Painting Techniques (2 units).** Lecture/laboratory, three hours. Prerequisites: graduate standing and consent of instructor. Not open for credit to students with credit for former course 146. The study of scenic painting techniques and materials and their relation to the realization of color design and elevations. Concurrently scheduled with course C146. Each graduate student (1) researches a new painting method or technique and (2) solves a specific scenic problem or examines a particular period. The result is a theatrical scene painting project relating to that research.



**450A. Cinematography.** Lecture, two hours; discussion, one hour. Prerequisites: graduate standing and consent of instructor. Not open for credit to students with credit for course 450A prior to Fall Quarter 1983. Advanced study of the principles of cinematography, with emphasis on exposure, lighting, and selection of film, camera, and lens.

**450B. Lighting for Motion Pictures and Television.** (Formerly numbered 450A.) Lecture, three hours; discussion, one hour; laboratory, four hours. Prerequisites: graduate standing and consent of instructor. Not open for credit to students with credit for course 450A prior to Fall Quarter 1983. Supervised exercises in studio and location film photography to develop skill in lighting and management of the photographic process as applied to motion pictures and films for television. May be repeated twice for credit.

**450C. Advanced Motion Picture/Television Directing and Photography (8 units).** (Formerly numbered 450B.) Lecture, three hours; discussion, two hours; laboratory, eight hours. Prerequisites: graduate standing and consent of instructor. Not open for credit to students with credit for course 450B prior to Fall Quarter 1983. Supervised filming of a short dramatic project on locations that explore the complexity of the process, emphasizing the balance essential to both directing and photographing in its varied technical and production aspects.

**451. Advanced Design for Motion Pictures (2 to 4 units).** Laboratory, to be arranged. Prerequisite: consent of instructor. 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 twelve units.

**452A. Motion Picture/Television Sound Recording.** Lecture, three hours; laboratory, four hours. Prerequisites: graduate standing and consent of instructor. Principles and practices of motion picture and television sound recording, including supervised exercises.

**452B. Music Recording Workshop.** Lecture, four hours; laboratory, eight hours. Prerequisites: course 452A and/or consent of instructor. Supervised exercises in studio music recording techniques, with emphasis on special requirements for motion pictures and television.

**452C. Motion Picture/Television Sound Rerecording.** Laboratory, eight hours. Prerequisites: course 452B or 452A, graduate standing, and consent of instructor. Techniques of preparation and execution of rerecording using multitrack pickup recording technology, including supervised operational experience.

**454A. Motion Picture Editing.** Lecture, three hours; laboratory, to be arranged. Prerequisites: graduate standing and consent of instructor. Limited to motion picture/television majors. A study of the role of editing the fictional and nonfictional production, with emphasis on the techniques and procedures used in manipulation of the sound track in sync dialogue cutting, post syncing, and music and sound effects cutting, including offscreen narration, dialogue substitution, and playback tracks.

**454B. Motion Picture Editing.** Lecture, three hours; laboratory, to be arranged. Prerequisites: graduate standing and consent of instructor. Limited to motion picture/television majors. A study of the role of editing the fictional and nonfictional production, with emphasis on the finishing stages, including title preparation. The use of optical effects and blowups, preparation for the supervision of the mix, and the cutting of originals for single strand and A&B printing.

**460A. Problems in Advanced Direction for the Stage.** Lecture, to be arranged. Prerequisite: consent of instructor. Limited to M.F.A. candidates. Preparation and presentation of a published one-act play or equivalent under rehearsal conditions. Discussion and critique of work in progress.

**460B. Problems in Advanced Direction for the Stage.** Lecture, to be arranged. Prerequisite: consent of instructor. Limited to M.F.A. candidates. Preparation and presentation of a published play under rehearsal conditions. Discussion and critique of work in progress.

**460C. Problems in Advanced Direction for the Stage.** Lecture, to be arranged. Prerequisite: consent of instructor. Limited to M.F.A. candidates. Preparation and presentation of a full-length original play under rehearsal conditions. Discussion and critique of work in progress.

**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.

**464A-464B. Motion Picture Direction (4 or 8 units each).** Hours to be arranged. Prerequisite: consent of instructor. Limited to motion picture/television graduate students. Special problems in the direction of fictional and documentary motion pictures.

**466A-466B. Television Direction (4 or 8 units each).** Lecture, two hours; laboratory, six hours. Prerequisites: graduate standing and consent of instructor. Special problems in the direction of dramatic and documentary television programs.

**C472. Production and Performance Laboratory (2 or 4 units).** Laboratory, to be arranged. Prerequisites: M.F.A. candidate and consent of instructor. Credit for creative production projects required of all M.F.A. students. May be repeated for a maximum of twelve units. Concurrently scheduled with courses C172 and C272.

**475. Film I (8 units).** Discussion, three hours; laboratory, to be arranged. Prerequisites: graduate standing and consent of instructor. A study of the basic techniques of film production, including the preproduction planning and production of a short film.

**476. Video I (8 units).** Discussion, three hours; laboratory, to be arranged. Prerequisites: graduate standing and consent of instructor. A study of the basic techniques of television and video production, including the completion of one or more projects.

**477. Film II (8 units).** Discussion, three hours; laboratory, to be arranged. Prerequisites: course 166 or 475, graduate standing, and consent of instructor. Group experience in film production with each member rotating on crew work in the production of individual or collective projects.

**478. Video II (8 units).** Discussion, three hours; laboratory, to be arranged. Prerequisites: course 185 or 476, graduate standing, and consent of instructor. Group experience in video production with each member rotating on crew work in the production of individual or collective projects.

**479A-479B-479C. Film III (4 or 8 units each).** (Formerly numbered C479A-C479B-C479C.) Laboratory, to be arranged. Prerequisites: course 475 or 166, graduate standing, and consent of instructor. Course 178 may be taken concurrently. The completion of a film (no longer than ten minutes), including its writing, design, production, and editing.

**480A-480B-480C. Workshop in Broadcast Journalism.** Laboratory, eight hours. Prerequisites: graduate standing and consent of instructor. The practice of reporting, writing, editing, and producing news, public affairs, and documentary programs for broadcast.

**482A-482B. Advanced Animation Workshop (4 or 8 units each).** Lecture, three hours; laboratory, to be arranged. Prerequisites: courses 181A, 181B, 181C, and consent of instructor. Organization and integration of various creative arts used in animation, resulting in the production of a complete animated film.

**483. Video Editing (4 or 8 units).** Discussion, four hours; laboratory, to be arranged. Prerequisites: course 476, graduate standing, and consent of instructor. Individual instruction in electronic editing.

**485A-485B-485C. Video III (4 or 8 units each).** (Formerly numbered C485A-C485B-C485C.) Laboratory, sixteen hours. Prerequisites: course 478, graduate standing, and consent of instructor. Creation, preparation, and production each quarter of one advanced television program (no longer than ten minutes).

**488A-488B-488C. Educational Television Workshop.** Laboratory, eight hours. Prerequisite: consent of instructor. Instruction and supervised exercises in directing and producing television programs for educational purposes.

**489A. Computer Animation in Film and Video (8 units).** Lecture, three hours; laboratory, eight hours; other, to be arranged. Prerequisites: courses 181A, 181C, a complete animated film, and consent of instructor. Instruction in and supervised production of computer animation. May be repeated once.

**495A. Problems in the Teaching of Theater Arts.** Lecture/laboratory, to be arranged. Prerequisites: graduate standing and consent of instructor. Study of and practice in the teaching of theater arts at the college and university level.

**495B. Problems in the Teaching of Theater Arts (2 or 4 units).** Laboratory, to be arranged. Prerequisites: graduate standing and consent of instructor. Not open for credit to students with credit for former courses 495C-495D. Demonstration of competence in theater production through successful completion of a major teaching production assignment. May be repeated for a maximum of twelve units.

**496. The Practice of Teaching Theater Arts (2 units).** Discussion. Required once of all teaching assistants or associates in the Theater Arts Department. Orientation and preparation of graduate students who have the responsibility to assist in the teaching of undergraduate courses in the department; discussion of problems common to the teaching experience. May not be applied toward the M.A., M.F.A., or Ph.D. May be repeated. S/U grading.

**498. Professional Internship in Theater Arts (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, and consent of instructor. An internship at various film, television, or theater facilities accentuating the creative contribution, the organization, and the 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. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. S/U grading.

**596A. Directed Individual Studies: Research (2 to 12 units).** Hours to be arranged. Prerequisite: graduate standing. May be repeated by consent of instructor.

**596B. Directed Individual Studies: Writing (2 to 12 units).** Hours to be arranged. Prerequisite: graduate standing. May be repeated by consent of instructor.

**596C. Directed Individual Studies: Directing (2 to 12 units).** Hours to be arranged. Prerequisite: graduate standing. May be repeated by consent of instructor.

**596D. Directed Individual Studies: Design (2 to 12 units).** Hours to be arranged. Prerequisite: graduate standing. May be repeated by consent of instructor.

**596E. Directed Individual Studies: Acting (2 to 12 units).** Hours to be arranged. Prerequisite: graduate standing. May be repeated by consent of instructor.

**596F. Directed Individual Studies: Production (2 to 12 units).** Hours to be arranged. Prerequisite: graduate standing. May be repeated by consent of instructor.

**597. Preparation for Ph.D. Qualifying Examination in Theater Arts (2 to 8 units).** May be repeated for a maximum of twelve 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 twelve 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 twelve units.

## Related Courses in Other Departments

**Classics** 142. Ancient Drama

**Dance** 141. Lighting Design for Dance Theater

144. Costume and Scenic Design Concepts for Dance Theater

**English** 10A, 10B, 10C. English Literature

90. Shakespeare

112. Children's Literature

135A-135B-135C. Creative Writing: Drama

167. The Drama, 1842 to the Present

**Humanities** 1A, 1B, 1C. World Literature

**Italian** 46. Italian Cinema and Culture

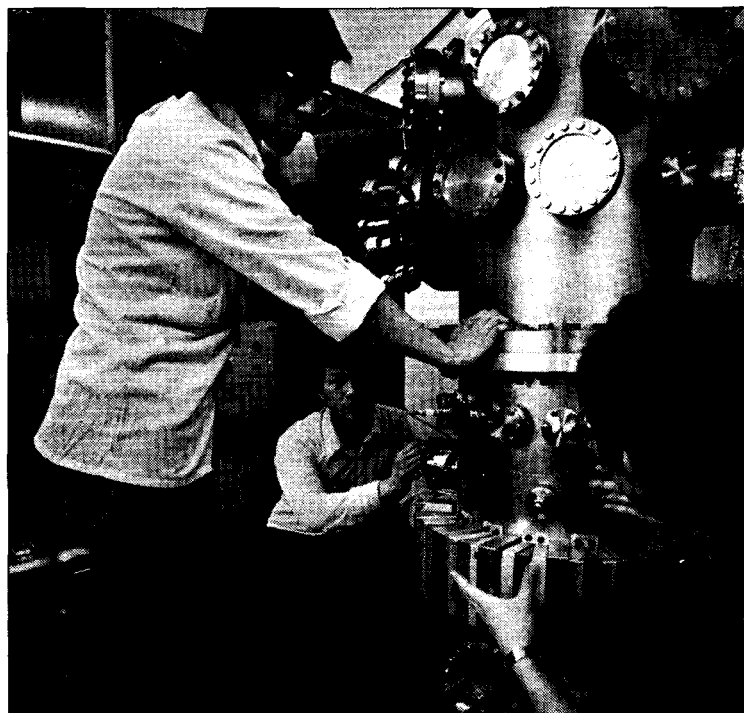
121. Italian Cinema

122. The Italian Theater

**Music** 135A-135B-135C. History of the Opera

# School of Engineering and Applied Science

George L. Turin, Dean



# 7

An engineering education provides unusual opportunities for solving problems whose solutions will better mankind. Technology is now a dominant cause of change, including social change, and modern engineering is more than an identifiable body of subject matter; it is a cogent point of view and approach to problem solving, as well. Engineering courses contribute significantly to an understanding of the overall process of action.

The UCLA School of Engineering and Applied Science, although young by University standards, now ranks among the top engineering schools in the country in terms of the quality of instruction and the research contributions of its faculty. Its goal is an education that will allow graduates to enter the well established branches of engineering, such as chemical, civil, electrical, and mechanical engineering, and to move into new, still to be discovered technical areas with confidence and ability. Included in this goal is the preparation for graduate study; by the year 2000, it is anticipated that the majority of practicing engineers will have advanced degrees in engineering, and that many more individuals with an undergraduate education in engineering will be practicing medicine, dentistry, and law.

There are seven departments within the school which serve as centers of activity for courses, graduate study, and research. By utilizing the resources of one or more departments, all students, undergraduate and graduate alike, are able to prepare for a wide range of professional careers in a number of industries, such as aerospace, electrical and electronics, metal products, mining, machinery and manufacturing, chemicals and petroleum, utilities, and construction.

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*Photo: Engineering students work on a molecular beam epitaxial growth facility.*

# School of Engineering and Applied Science

Graduate Studies Office:  
6426 Boelter Hall, 825-8058

Undergraduate Studies Office:  
6426 Boelter Hall, 825-2826

## Bachelor of Science Degrees

Students in the School of Engineering and Applied Science may elect one of the five four-year curricula listed below.

- (1) Bachelor of Science in Engineering with the following specializations: aerospace engineering, bioengineering\*, materials science and engineering, mechanical engineering, system science, systems engineering\*, unified engineering\*
- (2) Bachelor of Science in Chemical Engineering
- (3) Bachelor of Science in Civil Engineering
- (4) Bachelor of Science in Computer Science and Engineering
- (5) Bachelor of Science in Electrical Engineering

\*These are schoolwide programs which are described under "Schoolwide Engineering Curriculum" at the end of the departmental listings. The other specializations are described under individual departments.

The school offers instruction in acoustical engineering, aerospace engineering, applied plasma physics and fusion engineering, bioengineering, ceramic engineering, chemical engineering, civil engineering, computer engineering, control systems engineering, earthquake engineering, electrical and electronics engineering, general engineering, environmental engineering, fluid mechanics, geotechnical engineering, information and communications theory, manufacturing engineering, materials science, mechanical engineering,

metallurgy, nuclear engineering, soil mechanics, solid mechanics, structural engineering, systems science, and water resources.

### 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 Chapter 2. In the future, entrance to the school may be based on the results of a further examination of grades and test scores.

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 required 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 the bachelor's degree in six quarters (two academic years) of normal full-time study. Some students who choose 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 will 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<br>with laboratory ..... | 2 years |

It is also highly recommended that you take a course in technical drafting while in high school.

Freshman applicants whose entire secondary schooling was outside the United States must pass, with satisfactory scores, the College Board Scholastic Aptitude Test (verbal and mathematics sections) and Achievement Examinations in English composition, physics, and mathematics before a letter of admission to engineering can be issued. Arrangements to take the tests in another country should be made directly with the College Board, 1947 Center Street, Berkeley, CA 94704. Test scores should be forwarded to UCLA.

### 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-fourth courses in chemistry, equivalent to UCLA's Chemistry 11A, 11B/11BL (chemistry is not a requirement for the computer science and engineering degree; the chemical engineering curriculum also requires Chemistry 11C/11CL, 21, 23, 25); (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.

Students transferring to the school from institutions which offer instruction in engineering subjects in the first two years, particularly California community colleges, will be 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 University Extension, or from another college or school of the University must complete, after admission, eight upper division courses which will satisfy part of their approved major field sequence.

### Degree Requirements

The requirements for the Bachelor of Science degrees in Engineering, Chemical Engineering, Civil Engineering, Computer Science and Engineering, and Electrical Engineering consist of completing the minimum number of required units (from 185 to 190 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.

### Degrees Offered

|  |  |
|--|--|
| Chemical Engineering .....             | B.S.                                   |
| Civil Engineering .....                | B.S.                                   |
| Computer Science .....                 | M.S., Ph.D.                            |
| Computer Science and Engineering ..... | B.S.                                   |
| Electrical Engineering .....           | B.S.                                   |
| Engineering .....                      | B.S., M.S., M.Engr., Engr., Ph.D.      |
| Engineering and Applied Science .....  | Graduate Certificate of Specialization |

## University Requirements

University requirements in scholarship, Subject A, and American History and Institutions are discussed in detail in the "Undergraduate Degree Requirements" section in Chapter 2.

## Scholarship Requirements

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. In addition, a 2.0 minimum grade-point average in upper division mathematics, upper division core courses, and the major field is required for graduation.

## 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 Session on the Los Angeles campus.

## 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; advisers in the Undergraduate Studies Office 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 disciplinary action. You may not enroll in more than 18 units per quarter unless an Excess Unit Petition is approved in advance by the Dean.

You must maintain 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- will 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 be allowed to 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 may be applied toward the bachelor's degree for Chemistry 2 or its equivalent after one year of high school chemistry has been completed with a grade of C or better.

## Lower Division Preparation for the Major

### 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)

### 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)

### Chemistry\*

Two quarters or two semesters of general chemistry with laboratory (total of 9 quarter units minimum)

### Engineering

Digital computer programming, using a higher-level language such as Fortran IV, Pascal, or PL/1 (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)

### Additional Courses

Life science (4 units), English composition (4 units), humanities-social sciences-fine arts (total of 20 quarter units minimum)

### UCLA Equivalent Courses

Mathematics 31A, 31B  
Mathematics 32A, 32B  
Mathematics 33A, 33B

Physics 8A, 8B, 8C, 8D

Chemistry 11A, 11B/11BL†

Computer Science 10; engineering core\*\* courses; free electives\*\*

Life science course; English 3; humanities-social sciences-fine arts, three or four courses\*\*

\*Chemistry is not a requirement for the computer science and engineering degree.

\*\*See specific undergraduate curricula for core courses, humanities-social sciences-fine arts electives, and free electives, depending on curriculum followed.

†Chemical engineering curriculum also requires Chemistry 11C/11CL, 21, 23, 25.

No credit will be 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 IV, Pascal, or PL/1, will satisfy the Computer Science 10 requirement. Many sophomore courses in circuit analysis, strength of materials, and properties of materials may satisfy Electrical Engineering 100, Civil Engineering 108, and Materials Science and Engineering 14 respectively. Check with the Undergraduate Studies Office.

## Curricular Requirements

The curricula for the bachelor's degrees include the following categories, depending on curriculum selected:

(1) Three free elective courses (12 units) may be selected in some major/major field 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, certain remedial courses, and special courses designated by the school and posted in the Undergraduate Studies Office. However, in programs which include free elective units, it is strongly recommended that you select additional technical courses for some of these units.



(2) Six or seven humanities, social sciences, and/or fine arts courses (24 to 28 units) to be selected from an approved list. At least three (12 units) must be upper division courses.

To provide some depth, at least three courses (12 units) must be in the same academic department or must otherwise reflect coherence in subject matter. This group must contain at least two upper division courses.

In most cases, courses intended primarily to develop specific skills should be avoided except when the particular "skill" course is prerequisite to another upper division course strictly in the humanities or social sciences (e.g., foreign language and literature courses taught in the language). A list of courses which are normally acceptable individually as humanities-social sciences-fine arts electives is available in the Undergraduate Studies Office.

(3) One engineering and science in society course (four units). One of the humanities-social sciences-fine arts courses or one of the free electives (four units) must deal primarily with engineering and science in society in the 100, 200, or 596 series (to be selected from an approved list).

(4) One life science course (four units) to be selected from an approved list.

(5) One mathematics course (four upper division units); see curricula in individual departments for approved courses to fulfill this requirement.

(6) Engineering core courses, ranging from five to eight courses (20 to 32 units) depending on curriculum selected.

(7) Twelve to 15 courses (48 to 60 units) of upper division engineering major/major field courses, depending on curriculum followed.

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

(9) 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 posted in the Undergraduate Studies Office.

The engineering, chemical engineering, civil engineering, and electrical engineering curricula are accredited by the Accreditation Board for Engineering and Technology, Inc. (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 engineering adviser. After the first quarter, curricular and career advising will be accomplished on a formal basis. You are urged to select a faculty

adviser as soon as possible, preferably at the beginning of your sophomore year.

You may use the curriculum in effect when you begin full-time continuous study in engineering at UCLA, or you may select the curriculum in the *UCLA General Catalog* in effect at graduation. Community college transfers may also choose 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.

Attend the Junior Conference conducted by the School of Engineering and Applied Science to help you plan your curriculum. The conference usually is held during the fourth week of each quarter. For time and place, consult the Undergraduate Studies Office.

The Elective Selection form approved by the faculty adviser must be submitted for approval by the Assistant Dean, Undergraduate Studies, Undergraduate Studies Office, during the first quarter of the junior year (third quarter of the sophomore year for electrical engineering). The deadline is announced each term in the school's *Undergraduate Enrollment Instruction* brochure.

Members of the Undergraduate Studies Office staff 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 quarter 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 quarter. Only humanities-social sciences-fine arts 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 Chapter 4.

### 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 Chapter 2 and the *Announcement of the UCLA School of Engineering and Applied Science* for details.

#### Dean's Honor List

Students following the engineering curricula are eligible to be named to the Dean's Honor 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 with the Bachelor's Degree

Students who have achieved scholastic distinction may be awarded the bachelor's degree

with honors. Students eligible for honors at graduation must have completed 90 or more units (for a letter grade) at the University of California and must have attained a grade-point average which places them in the top five percent of the school for *Summa cum laude*, the next five percent for *Magna cum laude*, and the next ten percent for *Cum laude*.

Based on grades achieved in upper division courses, an engineering student should have a 3.8 grade-point average for *Summa cum laude*, a 3.6 for *Magna cum laude*, and a 3.4 for *Cum laude*. For all designations of honors, you must have a minimum 3.25 grade-point average in your major field elective 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."

### 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, two for each of the faculty's three major policy committees.

### Women in Engineering

Women make up 23 percent of the undergraduate and 12 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) has established a UCLA student chapter which sponsors field trips and engineering-related speakers (often professional women) to introduce the various options available to engineers. The UCLA chapter of SWE, in conjunction with other Los Angeles schools, also publishes an annual resumé book to aid women students in finding jobs.

### Continuing Education

UCLA Extension's Department of Engineering, Science, and Mathematics, located in 6266 Boelter Hall, is open daily and from 5 to 7 p.m. Monday through Thursday throughout the

year (except for the month of August and during Christmas and New Year's weeks) and offers information on Extension Continuing Education programs.

## Graduate Study

### Admission

In addition to meeting the requirements of the Graduate Division, applicants for the graduate engineering programs are required to take the General Test and Subject Test of the Graduate Record Examination in engineering, mathematics, or a related area. Applicants for the graduate computer science programs are required to take the Graduate Record Examination General Test and Subject Test in Mathematics or Computer Science.

Students entering the Engineer/Ph.D. program normally will be 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. Exceptional students with research experience and strong evidence of creativity may petition to proceed to candidacy for the Ph.D. degree without the M.S. degree.

Graduate students without adequate preparation may be admitted provisionally and may be required to take certain remedial coursework which may not be applied toward the degree. On arrival at UCLA, the adviser will help students plan a program which will remedy any such deficiencies.

Admission forms, including a departmental supplement to the application, may be obtained by writing to the Assistant Dean for Graduate Studies, School of Engineering and Applied Science, UCLA, Los Angeles, CA 90024.

### Undergraduate Courses

The following courses are not applicable toward graduate degrees: Engineering 11, 12, 106B, 106C, 106D, 109, Chemical Engineering M105A, M105D, 199, Civil Engineering 106A, 108, 199, Computer Science 5, 10C, 10F, 10S, 20, 30, 99, 199, Electrical Engineering 100, 100L, 199, Materials Science and Engineering 14, 15, 199, Mechanical, Aerospace, and Nuclear Engineering 94, 102, 103, M105A, M105D, 199, System Science 121C, 124A, 127B, 199.

Individual departments within the School of Engineering 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 parallel those listed below for the Ph.D. program. You are free, however, 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 in Engineering and in Computer Science, including a minimum of five graduate courses. No specific courses are required, but the majority of the total formal course requirement and a majority of the graduate course requirement must consist of courses in the School of Engineering in either the engineering or computer science major. 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 units of 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 lying 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 quarter, 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 Graduate Studies Office for details.

## Master of Engineering Degree

### Admission

In addition to the University minimum requirements, the following are required for the M.Engr. degree: (1) five years of responsible full-time professional experience in engineering; (2) some formal study in statistics; (3) the Graduate Management Admission Test or the Aptitude and Advanced Tests of the Graduate Record Examination in Engineering, Mathematics, or a related field. A screening interview with the coordinator of the Engineering Executive Program may be required.

The School of Engineering and Applied Science has a supplement to the Application for Admission which may be obtained from the Engineering Executive Program, 6722 Boelter Hall, School of Engineering and Applied Science.

### Major Field or Subdiscipline

Engineering management.

### Course Requirements

A total of 12 graduate courses are required: Engineering 470A-470D, 471A-471B-471C (half course), 472A-472D (half course), 473A-473B.

### Comprehensive Examination Plan

The comprehensive examination, which is offered once a year and is general in scope, is given in written and oral form. Students who fail this examination may be reexamined once.

## 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 and orientation 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 on the way to the Ph.D. degree; similarly, a student in the Engineer degree program may continue for 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.

## Ph.D. Degrees

### Major Fields or Subdisciplines\*

**Chemical Engineering Department:** Chemical engineering.

**Civil Engineering Department:** Earthquake engineering, mechanics of solids, soil mechanics, structures, water resources, systems engineering.

**Computer Science Department†:** Computer network modeling and analysis, computer science theory, computer system architecture, methodology of application of computers, software systems (programming languages and systems).

**Electrical Engineering Department:** Applied plasma physics and fusion engineering, circuits, communications and telecommunications engineering, electromagnetics, quantum electronics, solid-state electronics.

**Materials Science and Engineering Department:** Ceramics and ceramic processing, mechanical metallurgy and deformation processing, physical metallurgy and metal processing, science of materials.

**Mechanical, Aerospace, and Nuclear Engineering Department:** Applied dynamic systems control, applied plasma physics and fusion engineering, dynamics, earthquake engineering, fluid mechanics, heat and mass transfer, mechanics of solids, nuclear science and engineering, soil mechanics, structures and manufacturing engineering.

**System Science Department:** Communications systems, control systems, operations research.

**Schoolwide Fields:** Applied mathematics\*\*, man-machine-environment systems.

**Schoolwide Programs:** Biocybernetics, bioengineering.

\*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 the Graduate Studies Office.

†Computer science majors may pursue additional relevant minor fields of study offered by the School of Engineering and Applied Science.

\*\*Established minor field only.

### Course Requirements

There is no formal course requirement for the Ph.D. degree, and you may, theoretically, substitute coursework by examinations. Normally, however, you will take courses to acquire the knowledge needed for the written and oral preliminary examinations. The basic program of study for the Ph.D. degrees in Engineering and in Computer Science 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 your area of specialization. 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 you fail to satisfy the minor field requirements through coursework, a minor field examination may be taken (once only).

### Qualifying Examinations

When you have mastered the body of knowledge defined in the three fields, you will take a written preliminary examination in the major field. When this examination is passed and all coursework completed, you will proceed to take an oral preliminary examination which encompasses the major and minor fields. Both preliminary examinations should be completed within the first two years of full-time enrollment in the Ph.D. program. You may not take an examination more than twice.

After passing both preliminary examinations, you are ready to take the University Oral Qualifying Examination. The details of the examination are at the discretion of the doctoral committee but ordinarily will include a broad inquiry into your preparation for research. The doctoral committee also reviews the prospectus of the dissertation at the oral qualifying examination.

### Final Oral Examination

A final oral examination may be required of Ph.D. candidates.

### Graduate Certificate of Specialization

A certificate of specialization is available in all areas 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 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 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 the Graduate Studies Office.

Courses completed for a Certificate of Specialization in Engineering and Applied Science may subsequently be applied toward master's and/or doctoral degrees.

## Chemical Engineering

5405 Boelter Hall, 825-5423

### Professors

Traugott H.K. Frederking, Ph.D.  
Sheldon K. Friedlander, Ph.D. (*Ralph M. Parsons Professor of Chemical Engineering*)  
Eldon L. Knuth, Ph.D.  
Ken Nobe, Ph.D.  
Lawrence B. Robinson, Ph.D.  
William D. Van Vorst, Ph.D.  
Ahmed R. Wazzan, Ph.D., *Associate Dean*  
F. Eugene Yates, M.D. (*Crump Professor of Medical Engineering*)

### Associate Professors

Owen I. Smith, Ph.D.  
Vincent L. Vilker, Ph.D.

### Assistant Professors

David T. Allen, Ph.D.  
Yoram Cohen, Ph.D.  
Saeed Fathi-Afshar, Ph.D.

### Adjunct Professors

Manuel M. Baizer, Ph.D.  
W. Kenneth Davis, M.S.

### Adjunct Lecturer

Dwight A. Landis, M.S.

## Scope and Objectives

The Department of Chemical Engineering conducts active undergraduate and graduate programs of teaching and research in the areas of thermodynamics, mass transfer, chemical reaction engineering and catalysis, electrochemistry and corrosion, combustion science, cryogenics and low temperature processes, biochemical engineering, computer-aided design, 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 and is accredited by ABET and AIChE. The department also offers graduate training 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 in Chemical Engineering

The goal of the chemical engineering curriculum is to provide a high quality, professionally oriented education in modern chemical engineering. Balance is sought between design and science.

## The Major

Course requirements are as follows (186 minimum units required):

- (1) Six core courses: Chemical Engineering M105A, M105D, Civil Engineering 108, Electrical Engineering 100, Mechanical, Aerospace, and Nuclear Engineering 103, System Science 124A.
- (2) Chemical Engineering 137, 137A, 137B, 137C, 137D, 137E (satisfies the engineering economics requirement), 137F, 138; 139AC, 139BC (satisfies the laboratory requirement); M192A (satisfies the mathematics requirement); Chemistry 113A, 114.
- (3) Two elective courses from Chemical Engineering 130A, 138A, 138B, 138C, 138E (other courses in engineering, mathematics, and the sciences may be selected in consultation with your adviser), and one upper division chemistry elective course (except Chemistry 110A) selected in consultation with your adviser.
- (4) English 3; Chemistry 11A, 11B/11BL, 11C/11CL, 21, 23, 25 (satisfies the life science requirement); Computer Science 10C or 10F; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A, 8B, 8C, 8D.
- (5) Six courses from the humanities, social sciences, and/or fine arts approved list (at least three must be upper division; at least three — with two upper division — must be in the same academic department or otherwise reflect coherence with respect to subject matter; and one must satisfy the engineering and science in society requirement).

## Graduate Study

For information on graduate admission to the chemical engineering program and requirements for the M.S., Engineer, and Ph.D. degrees and certificate of specialization, see "Graduate Study" at the beginning of this chapter.

## Upper Division Courses

**M105A. Introduction to Engineering Thermodynamics.** (Formerly numbered Engineering 105A.) (Same as Mechanical, Aerospace, and Nuclear Engineering M105A.) Lecture, four hours; recitation, one hour. Prerequisites: Physics 8B, Mathematics 32B. Phenomenological thermodynamics. Concepts of equilibrium, temperature, and reversibility. First law and concept of energy; second law and concept of entropy. Equations of state and thermodynamic properties. Engineering applications of these principles in the analysis and design of closed and open systems. Mr. Robinson, Mr. Wazzan (F,W,Sp)

**M105D. Transport Phenomena.** (Formerly numbered Engineering 105D.) (Same as Mechanical, Aerospace, and Nuclear Engineering M105D.) Lecture, four hours; recitation, one hour. Prerequisites: Physics 8B, Mathematics 32B, 33A. Transport phenomena; heat conduction, mass species diffusion, convective heat and mass transfer, and radiation. Engineering applications in thermal and environmental control. Mr. Vilker (F,W,Sp)

**130A. Introduction to Statistical Thermodynamics.** (Formerly numbered Engineering 130A.) Prerequisite: course M105A. Calculations of expected values and variances of thermodynamic functions for perfect monatomic gas, Einstein monatomic crystal, photon gas, electron gas in a metal, perfect absorbed gas, perfect diatomic gas, and Debye monatomic crystal. Calculations of gross emission rates from surfaces. (F)

**137. Introduction to Chemical Engineering.** (Formerly numbered Engineering 137.) Prerequisites: Mathematics 32B (may be taken concurrently), Chemistry 11C/11CL, Physics 8B. Introduction to the analysis and design of industrial chemical processes. Material and energy balances. (F)

**137A. Chemical Engineering Thermodynamics.** (Formerly numbered Engineering 137A.) Prerequisite: course 137. Thermodynamic properties of pure substances and solutions. Phase equilibrium. Chemical reaction equilibrium. (W)

**137B. Chemical Engineering Diffusional Processes.** (Formerly numbered Engineering 137B.) (Not the same as course 137B prior to Fall Quarter 1981.) Prerequisites: courses M105D, 137, 137A. Brownian motion, fluxes according to irreversible thermodynamics; one-dimensional theory: membrane transport, facilitated transport; convective diffusion, concentration boundary layers, turbulent diffusion. The fundamentals are illustrated by applications to separation processes, gas cleaning, and blood oxygenation. (Sp)

**137C. Chemical Engineering Separation Operations.** (Formerly numbered Engineering 137C.) (Not the same as course 137C prior to Fall Quarter 1981.) Prerequisites: courses M105D, 137, 137A. Application of the principles of heat, mass, and momentum transport to the design and operation of separation processes such as distillation, gas absorption, filtration, and reverse osmosis. (Sp)

**137D. Chemical Engineering Kinetics.** (Formerly numbered Engineering 137D.) (Not the same as course 137D prior to Winter Quarter 1982.) Prerequisites: courses M105D, 137, 137A, 137B. Fundamentals of chemical kinetics and catalysis. Introduction to the analysis and design of homogeneous and heterogeneous chemical reactors. (F)

**137E. Chemical Process Economics and Synthesis.** (Formerly numbered Engineering 137E.) Prerequisite: junior or senior standing. Integration of chemical engineering fundamentals such as transport phenomena, thermodynamics, separation operations, and reaction engineering and simple economic principles for the purpose of designing chemical processes and synthesizing process flowsheets. (W)

**137F. Chemical Process Computer-Aided Design and Analysis.** Prerequisites: courses 137C, 137D, 137E, Computer Science 10F. An introduction to the application of some of the mathematical and computing methods to chemical engineering design problems; the use of simulation programs as an automated method of performing steady state material and energy balance calculations. (Sp)

**138. Chemical Engineering Process Dynamics and Control.** (Formerly numbered Engineering 138.) Prerequisites: courses 137B, 137C, 137D. Principles of dynamics modeling and start-up behavior of chemical engineering processes. Chemical process control elements. Design and applications of chemical process computer control. (W)

**138A. Introduction to Cryogenics and Low Temperature Processing.** (Formerly numbered Engineering 138A.) Prerequisite: course M105A. Liquefaction of gases, cooling to cryotemperatures, LNG processes, liquid hydrogen, and liquid He cryosystems for superfluids and applied superconductivity. Mr. Frederking (W)

**138B. Chemical Engineering Polymer Processes.** (Formerly numbered Engineering 138B.) Prerequisites: Mechanical, Aerospace, and Nuclear Engineering 103, Chemistry 21, or senior standing in engineering or physical science. 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. Mr. Cohen (F)

**138C. Chemical Engineering Pollution Technology.** Prerequisites: courses 137C, 137D, or equivalent. Integration of chemical engineering fundamentals such as transport phenomena and chemical kinetics with environmental pollution concerns for the purpose of designing control devices and of analyzing the fate of pollutants in the environment. Mr. Cohen, Mr. Friedlander, Mr. Vilker (W,Sp)

**138E. Fundamentals of Corrosion.** (Formerly numbered Engineering 138E.) Prerequisites: courses M105A, and 137A or Materials Science and Engineering 141. The fundamentals of electrochemistry pertinent to metallic corrosion are presented. Primary emphasis on the fundamental approach in the consideration of complex corrosion processes. Specific topics include pitting, crevice corrosion, stress corrosion, hydrogen embrittlement, and corrosion control. Mr. Nobe (Sp)

**139A. Introductory Chemical, Nuclear, and Thermal Engineering Laboratory.** (Formerly numbered Engineering 139A.) Laboratory, eight hours. Prerequisites: courses M105A, M105D, Mechanical, Aerospace, and Nuclear Engineering 103. Basic introductory laboratory experiments illustrating the equilibrium state properties and transport response to applied driving forces in energy transformation and rate processes. Experiments include examples from thermodynamics, chemical engineering, heat and mass transfer, nuclear engineering, and environmental problems.

**139AC. Introductory Chemical, Nuclear, and Thermal Engineering Laboratory.** (Formerly numbered Engineering 139AC.) Laboratory, eight hours. Prerequisites: courses M105A, M105D, 137, 137A, Mechanical, Aerospace, and Nuclear Engineering 103, or consent of instructor. Designed for students in the chemical engineering program. Basic introductory laboratory experiments illustrating the equilibrium state properties and transport response to applied driving forces in energy transformation and rate processes. Experiments include examples from thermodynamics, chemical engineering, heat and mass transfer, nuclear engineering, and environmental problems. (F,Sp)

**139B. Chemical and Thermal Engineering Laboratory.** (Formerly numbered Engineering 139B.) Laboratory, eight hours. Prerequisites: courses 139A, and 137A or Mechanics and Structures 131A. Basic laboratory practice for the study of energy transformation and rate processes. Selected experiments include examples from thermodynamics, heat and mass transfer, chemical and electrochemical processes, cryogenics, chemical kinetics, molecular dynamics, saline water conversion, and environmental problems.

**139BC. Chemical and Thermal Engineering Laboratory.** (Formerly numbered Engineering 139BC.) Laboratory, eight hours. Prerequisites: courses 137B, 137C (may be taken concurrently), 139AC, or consent of instructor. Designed for students in the chemical engineering program. Basic laboratory practice for the study of energy transformation and rate processes. Selected experiments include examples from thermodynamics, heat and mass transfer, chemical and electrochemical processes, cryogenics, chemical kinetics, molecular dynamics, saline water conversion, and environmental problems. (F,W)

**M192A. Mathematics of Engineering.** (Formerly numbered Engineering 192A.) (Same as Mechanical, Aerospace, and Nuclear Engineering M192A.) Prerequisites: Mathematics 33A, 33B. Application of mathematical methods to problems of interest in engineering. The main topic is systems of linear ordinary differential equations. Fourier series, transforms, and nonlinear effects are also discussed as related to the solutions of differential equations.

Mr. Robinson (F,W,Sp)

**199. Special Studies (2 to 8 units).** Prerequisites: senior standing and consent of instructor. Individual investigation of a selected topic to be arranged with a faculty member. Enrollment request forms are available in department office. Occasional field trips may be arranged. May be repeated for credit.

(F,W,Sp)

## Graduate Courses

**230A. Advanced Engineering Thermodynamics.** Prerequisites: courses 130A and 137A, or equivalent. Phenomenological and statistical thermodynamics of chemical and physical systems with engineering applications. Presentation of the role of atomic and molecular spectra and intermolecular forces in the interpretation of thermodynamic properties of gases, liquids, solids, and plasmas.

(F)

**230B. Nonequilibrium Thermodynamics.** Prerequisite: course 230A. Interpretation of nonequilibrium phenomena in terms of the fourth law of thermodynamics, namely (1) linear interdependence of fluxes and driving forces and (2) Onsager reciprocal relations. Boltzmann transport equation; diffusion; electrical and heat currents; numerical calculation of parameters.

Mr. Robinson (Sp)

**230C. Cryogenics.** Prerequisite: course 137A. The study of basic phenomena in low temperature systems, including the third law, various cooling methods, and superfluid systems; Meissner state, type I and type II systems; applied superconductivity cryogenics.

Mr. Frederking (Sp)

**230D. Thermodynamics of Phase Transitions.** Prerequisite: course 230A or equivalent. Phase stability criteria and separation of phases. Molecular thermodynamic treatment of multicomponent systems with chemical engineering applications. Solubility of gases and solids in liquids. Phase equilibrium properties of fluid mixtures.

Mr. Robinson (Sp)

**237A. Reaction Kinetics.** Prerequisites: courses 130A and 137C, 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.

(W)

**237B. Molecular Dynamics.** Prerequisite: course 130A or 137C. 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.

Mr. Knuth (W)

**237E. Combustion Processes.** Prerequisite: course 137C 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.

Mr. Knuth, Mr. Smith (Sp)

**238. Advanced Diffusion and Interfacial Transfer.** Prerequisite: course 137E or consent of instructor. Advanced treatment of diffusion and interfacial transfer, with applications to industrial separation processes, gas cleaning, and pulmonary bioengineering; molecular and phenomenological theories of diffusion; structure of the interface: membrane transport, facilitated transport, active transport; concentration boundary layers, turbulent diffusion.

(F)

**238A. Chemical Reaction Engineering.** Prerequisites: courses 137B and 137C, 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.

(W)

**238C. Electrochemical Engineering.** Prerequisite: one year of physical chemistry or equivalent. Transport phenomena in electrochemical systems; relationships between molecular transport, convection, and electrode kinetics are discussed, along with applications to industrial electrochemistry, fuel cell design, and modern battery technology.

Mr. Nobe (Sp)

**238D. Biochemical Engineering.** Prerequisites: courses 137C and 137D, or consent of instructor. Theoretical models and experimental techniques for describing the thermodynamics and transport behavior of solutions of biological macromolecules. Non-ideal solution behavior emphasized. Applications to mass transfer problems in natural and man-made systems. Elementary theory of biochemical reactions.

Mr. Vilker (W)

**239AA-239AZ. Special Topics in Chemical Engineering (2 to 4 units each).** Prerequisites: consent of instructor and additional prerequisites for each offering as announced in advance by the 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.

(F,W,Sp)

**239CA-239CZ. Seminar: Current Topics in Energy Utilization.** Prerequisite: consent of instructor. Review of current literature in an area of energy utilization in which the instructor has developed special proficiency as a consequence of research interests. Students report on selected topics.

(F,W,Sp)

**239EA-239EZ. Seminars in Chemical Engineering (2 to 4 units each).** Prerequisites: consent of instructor and additional prerequisites for each offering as announced in advance by the department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit.

(F,W,Sp)

**240. Fundamentals of Aerosol Technology.** Prerequisite: course 137B or equivalent. 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.

Mr. Friedlander (W)

**250. Computer-Aided Chemical Process Design.** Prerequisite: course 137E or consent of instructor. The 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.

Mr. Fathi-Afshar (F)

**260. Non-Newtonian Fluid Mechanics.** Prerequisite: prior course in fluid mechanics such as Mechanical, Aerospace, and Nuclear Engineering 150A or consent of instructor. Principles of non-Newtonian fluid mechanics. Stress constitutive equations. Rheology of polymeric liquids and dispersed systems. Applications in viscometry, polymer processing, bio-rheology, oil recovery, and drag reduction.

Mr. Cohen (W)

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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.

Mr. Nobe (F,W,Sp)

**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 the 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.

## Chemistry/ Materials Science (Interdepartmental)

For details on this undergraduate program, see Chapter 5 on the College of Letters and Science.

## Civil Engineering

6731 Boelter Hall, 825-2471

### Professors

Stanley B. Dong, Ph.D.  
John A. Dracup, Ph.D.  
Michael E. Fourny, Ph.D.  
Gary C. Hart, Ph.D.  
Poul V. Lade, Ph.D.  
Chung Yen Liu, Ph.D.  
Rokuro Muki, Ph.D.  
Richard B. Nelson, Sc.D., *Chair*  
Richard L. Perrine, Ph.D.  
Moshe F. Rubinstein, Ph.D.  
Lucien A. Schmit, Jr., M.S.  
Lawrence G. Selna, Ph.D.  
William W. G. Yeh, Ph.D.  
C. Martin Duke, M.S., *Emeritus*  
Tung Hua Lin, D.Sc., *Emeritus*

### Associate Professors

Lewis P. Felton, Ph.D.  
Mete Oner, Ph.D., *Acting*  
Dixon Rea, Ph.D.  
Stanford B. Roberts, Ph.D.  
Michael K. Stenstrom, Ph.D.

### Assistant Professor

Johannes B. Neethling, Ph.D.

**Senior Lecturer**George J. Tauxe, M.S., *Emeritus***Adjunct Professors**

Robert E. Englekirk, Ph.D.

George E. Warren, Ph.D.

**Scope and Objectives**

The civil engineering programs at UCLA include structural engineering and design, geotechnical engineering, earthquake engineering, water resource systems engineering, environmental engineering, and decision making and engineering management.

The ABET-accredited civil engineering curriculum leads to a B.S. in Civil Engineering, a broad-based education in structural engineering, soil mechanics, and water resource systems. 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 a number of areas, including structures, structural mechanics, earthquake engineering, mechanics of solids, soil mechanics, and water resource systems 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 water treatment and pollution control.

**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 who are eagerly sought by prospective employers and/or graduate civil engineering schools in the United States.

**The Major**

Course requirements are as follows (185 minimum units required):

(1) Seven core courses: Chemical Engineering M105A or Mechanical, Aerospace, and Nuclear Engineering M105A, Civil Engineering 108, Electrical Engineering 100, Materials Science and Engineering 14, Mechanical, Aerospace, and Nuclear Engineering 102, 103, System Science 124A.

(2) Civil Engineering 106A, 165A, 165B or M166, 184B, 184D, 185A, 186; one mathematics course from Mechanical, Aerospace, and Nuclear Engineering 191A, M192A (or Chemical Engineering M192A), 192B, 192C, 193A, 193B.

(3) Twenty-eight elective units, to be selected from the courses listed below, which must include at least 13 design units and eight units of laboratory. At least two four-unit design courses are required (Civil Engineering 167A and 167B are recommended for students specializing in structures; Civil Engineering 167B and 185B are recommended for students specializing in geotechnical engineering or water resources and environmental engineering):

*Engineering Mechanics:* Civil Engineering 157B, 160, M166, Mechanical, Aerospace, and Nuclear Engineering 156A, 158A.

*Geotechnical Engineering:* Civil Engineering 185B, 185L, Earth and Space Sciences 100, M139.

*Structures:* Civil Engineering 165B, 165C (for structural analysis); Civil Engineering M169A, 169L (for structural dynamics); Civil Engineering 165L, 167A, 167B, 167C, 167L, 167X (for structural design).

*Systems Analysis:* Civil Engineering 174A, 176A.

*Water Resources and Environmental Engineering:* Civil Engineering 134A, 181A, 184A, 184E.

(4) English 3; Chemistry 11A, 11B/11BL; Computer Science 10F; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A, 8B, 8C, 8D; one life science elective course.

(5) Six courses from the humanities, social sciences, and/or fine arts approved list (at least three must be upper division; at least three — with two upper division — must be in the same academic department or otherwise reflect coherence with respect to subject matter).

(6) Three free elective courses, one of which must satisfy the engineering and science in society requirement.

**Graduate Study**

For information on graduate admission to the civil engineering program and requirements for the M.S., Engineer, and Ph.D. degrees and certificate of specialization, see "Graduate Study" at the beginning of this chapter.

**Upper Division Courses**

**106A. Principles of Engineering Economy.** (Formerly numbered Engineering 106A.) Prerequisite: upper division standing. Economic analysis of engineering projects; value systems; economic decisions on capital investment and choice of engineering alternatives; new projects, replacement and abandonment policies; risky decisions including make/buy policies and research investment; corporate financial practices and accounting. Mr. Dracup (F,W,Sp)

**108. Introduction to Mechanics of Deformable Solids.** (Formerly numbered Engineering 108.) Lecture, three hours; recitation, two hours. Prerequisite or corequisite: Mathematics 33A. Recommended: Mechanical, Aerospace, and Nuclear Engineering 102. Review of equilibrium principles. Concepts of stress and strain. Material constitution (stress-strain relations). Energy in deformable bodies. Structural applications to trusses, beams, shafts, columns, and pressure vessels. Mr. Nelson (F,W,Sp)

**134A. New Energy Technology: Resources, Conversion, Constraints.** (Formerly numbered Engineering 134A.) Prerequisite: Chemical Engineering M105A or Mechanical, Aerospace, and Nuclear Engineering M105A or equivalent in physics or chemistry or consent of instructor. Energy resources: fossil fuels (fuel to fuel conversions), nuclear fuels, geothermal sources, solar power, etc. Conversion methods for power production and other energy uses. Consideration of thermodynamic, economic, and environmental constraints. Mr. Perrine

**157B. Experimental Fracture Mechanics.** (Formerly numbered Engineering 157B.) Lecture, two hours; laboratory, four hours. Prerequisite: Mechanical, Aerospace, and Nuclear Engineering 157 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. Mr. Fournier (W)

**160. Introduction to Biostructural Mechanics.** (Formerly numbered Engineering 160.) Prerequisite: course 108 or equivalent. An introduction to biostructural mechanics of the human musculoskeletal system. Structural characteristics and behavior of skeletal members. Response to mechanical trauma. Elastic and viscoelastic properties of hard and soft tissues. Mathematical modeling. Design characteristics of hip prostheses and anthropometric dummies. Mr. Roberts (Sp)

**165A. Elementary Structural Analysis.** (Formerly numbered Engineering 165A.) Prerequisite: course 108. Equilibrium of structures; deformation analysis of structures by differential equation method, moment-area method, and the principle of virtual work; influence lines; analysis of statically determinate and indeterminate structures such as beams, frames, arches, and trusses; introduction to slope-deflection equations. Mr. Schmit (F,Sp)

**165B. Intermediate Structural Analysis.** (Formerly numbered Engineering 165B.) Prerequisite: course 165A. Classical force, displacement methods of structural analysis; three moment equation, slope-deflection equations, moment distribution; virtual work, minimum potential, complementary potential theorems; Castigliano's theorems, generalized displacements, forces; Rayleigh-Ritz method; introduction to matrix methods; stiffness, flexibility matrices for bars, beams. Mr. Nelson (F,W)

**165C. Computer Analysis of Structures.** (Formerly numbered Engineering 165C.) Prerequisite: course 165A. Development of algorithms and Fortran coding for matrix manipulation, inversion; solution of the linear algebraic equations, eigenvalue problems; structural applications; matrix displacement method for planar trusses, frames, direct assembly of system stiffness; matrix force method for planar frames. Mr. Dong (Sp)

**165L. Structural Design and Testing Laboratory (2 units).** (Formerly numbered Engineering 165L.) Lecture, one hour; laboratory, four hours. Prerequisites: course 165A, Mechanical, Aerospace, and Nuclear Engineering 157. Design, construction, instrumentation, and test of a small-scale model of a structure for comparison with theoretically predicted behavior. Mr. Felton (Sp)



**M166. Elementary Structural Mechanics.** (Formerly numbered Engineering 166.) (Same as Mechanical, Aerospace, and Nuclear Engineering M166.) 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. Mr. Roberts (W)

**167A. Design of Steel Structures.** (Formerly numbered Engineering 167A.) Lecture, three hours; recitation, three hours. Prerequisite: course 165A. Allowable stress design of tension members, compression members, beams, beam columns, and tension splices according to AISC specifications for buildings. Mr. Rea (F)

**167B. Design of Reinforced Concrete Structures.** (Formerly numbered Engineering 167B.) Lecture, three hours; recitation, three hours. Prerequisite: course 165A. Design of reinforced concrete buildings. Reinforced concrete beams, columns, and slabs. Working stress and ultimate strength methods of analysis. Determination of loads and design constraints. Introduction to reinforced concrete structural systems. Mr. Selna (W)

**167C. Design of Prestressed Concrete Structures.** (Formerly numbered Engineering 167C.) Prerequisite: course 165A. 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. Mr. Selna (Sp)

**167L. Reinforced Concrete Structural Laboratory.** (Formerly numbered Engineering 167L.) Laboratory, eight hours. Prerequisites: course 167B and consent of instructor. Experimental verification of strength design methods used for reinforced concrete elements. Full or near-full scale slab, beam, column, and joint specimens tested to failure. Mr. Selna (Sp)

**167X. Reinforced Concrete Construction Laboratory (2 units).** (Formerly numbered Engineering 167X.) Laboratory, four hours. Prerequisite: junior standing. Design and fabrication methods used for construction of reinforced concrete structural elements. Full or near-full scale slab, beam, column, and joint elements formed, fabricated, and cast in the laboratory. Mr. Selna (F)

**M169A. Introduction to Mechanical Vibrations.** (Formerly numbered Engineering 169A.) (Same as Mechanical, Aerospace, and Nuclear Engineering M169A.) Prerequisites: course 108, Mechanical, Aerospace, and Nuclear Engineering 102. Recommended: System Science 121C. Fundamentals of vibration theory and applications. Free, forced, and transient vibration of one and two degrees of freedom systems, including damping and nonlinear behavior. Normal modes, coupling, and normal coordinates. Elements of vibration and wave propagation in continuous systems. Mr. Hart (F)

**169L. Mechanical Vibrations Laboratory (2 units).** (Formerly numbered Engineering 169L.) Corequisite: course M169A. 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. Mr. Rea (F)

**174A. Introduction to Elements of Decision Making.** (Formerly numbered Engineering 174A.) Prerequisite: Mechanical, Aerospace, and Nuclear Engineering 193A or equivalent mathematics course. Elements of decision making and the 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 judgements; bias and scoring rules. Mr. Rubinstein (F)

**181A. Air Pollution Control.** (Formerly numbered Engineering 181A.) Prerequisite: senior standing or consent of instructor. Quantitative consideration of the air resource and its management. Air quality measurements and standards. Systems for pollution removal. Industrial, commercial, and community air pollution problems. Data analyses and interpretations. Lectures, occasional laboratory, and field trips. Mr. Perrine (Sp)

**184A. Engineering Hydrology.** (Formerly numbered Engineering 184A.) Prerequisite: senior standing or consent of instructor. Recommended: elementary probability. Precipitation, climatology, stream flow analysis, flood frequency analysis, groundwater, snow hydrology, hydrologic simulation. Possible field trips. Mr. Dracup, Mr. W. Yeh (F,Sp)

**184B. Introduction to Water Resources Engineering.** (Formerly numbered Engineering 184B.) Prerequisite: Mechanical, Aerospace, and Nuclear Engineering 103 or consent of instructor. Principles of hydraulics, the 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. Mr. W. Yeh (W)

**184D. Water Quality Control Systems.** (Formerly numbered Engineering 184D.) Prerequisites: Mechanical, Aerospace, and Nuclear Engineering 103 and upper division standing in engineering, or consent of instructor. Biological, chemical, and physical bases of water quality and pollution; potability and chemical aspects of treatment and reclamation; analysis and design of water and wastewater treatment systems; field trip. Mr. Stenstrom (F,Sp)

**184E. Water Quality Control Laboratory.** (Formerly numbered Engineering 184E.) Laboratory, eight hours. Prerequisites: course 184D (may be taken concurrently), Chemistry 11A, 11B. Basic laboratory techniques and practice for the characterization and analysis of waters and wastewaters. Selected experiments include measurement of biochemical oxygen demand, suspended solids, dissolved oxygen hardness, and other parameters used in water quality control. Mr. Stenstrom (F,Sp)

**185A. Principles of Soil Mechanics.** (Formerly numbered Engineering 185A.) Prerequisite: course 108. Recommended: Earth and Space Sciences 1. 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. Mr. Lade (F,W)

**185B. Design of Foundations and Earth Structures.** (Formerly numbered Engineering 185B.) (Not the same as course 185B prior to Winter Quarter 1983.) Prerequisite: course 185A. Design methods for foundations and earth structures. Site investigation, including determination of soil properties for design. Design of footings and piles, including stability and settlements calculations. Design of slopes and earth retaining structures. Mr. Lade (Sp)

**185L. Soil Mechanics Laboratory (2 units).** (Formerly numbered Engineering 185L.) Laboratory, four hours. Prerequisite: course 185A or consent of instructor. Laboratory experiments to be performed by the students to get basic data required for assigned design problems. Soil classification, Atterberg limits, permeability, compaction, shear strength, and specific gravity determination. Design problems, report writing. Mr. Lade

**186. Civil Engineering Projects.** (Formerly numbered Engineering 186.) Lecture, two hours; recitation, four hours. Prerequisites: courses 167A or 167B or 167C, and 184B, 185A. Integration of civil engineering disciplines for design of bridges or other projects. Stream flow studies, stream bed transport, and scour. Foundation design of piers, abutments, and approach structures. Structural concepts, loading, analysis, member selection, and detailing of abutments, piers, and superstructure. Mr. Selna (W)

**199. Special Studies (2 to 8 units).** Prerequisites: senior standing and consent of instructor. Individual investigation of a selected topic to be arranged with a faculty member. Enrollment request forms are available in department office. Occasional field trips may be arranged. May be repeated for credit. (F,W,Sp)

## Graduate Courses

**256B. Elasticity.** (Formerly numbered Mechanics and Structures 256B.) Prerequisite: Mechanical, Aerospace, and Nuclear Engineering 256A or consent of instructor. Formulation of elastostatic problems; general, plane strain, plane stress. Reciprocal theorems and variational theorems. Airy's stress function and Papkovitch-Neuber solution. Fundamental singular solutions, stress concentration, thermal stresses, elastic contact, load transfer, St. Venant's principle and applications. Mr. Muki (W)

**264A. Theory of Plates and Shells.** (Formerly numbered Mechanics and Structures 264A.) Prerequisite: course M166, Mechanical, Aerospace, and Nuclear Engineering 158A, or consent of instructor. 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. Mr. Roberts (W)

**265A. Advanced Structural Analysis.** (Formerly numbered Mechanics and Structures 265A.) Prerequisite: course 165B. Review of elasticity theory; theorem on virtual work, stationary value of potential and complementary potential; Castigliano, Maxwell-Betti theorems; stiffness, flexibility matrices for truss, beam elements; matrix force and displacement analysis of trusses, frames; introduction to finite element methods. Mr. Nelson (F)

**265B. Finite Element Analysis of Structures.** (Formerly numbered Mechanics and Structures 265B.) Prerequisites: courses M166 and 265A, 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. Mr. Dong (W)

**265C. Nonlinear Structural Analysis.** (Formerly numbered Mechanics and Structures 265C.) Prerequisite: course 265B 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. Mr. Nelson (Sp)

**266A. Stability of Structures I.** (Formerly numbered Mechanics and Structures 266A.) Prerequisite: courses 165B and M166, 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. Mr. Schmit (Sp)

**267A. Optimum Structural Design.** (Formerly numbered Mechanics and Structures 267A.) Prerequisite: course 265A. Synthesis of structural systems; analysis and design as optimization problems; techniques for synthesis and optimization; application to aerospace and civil structures. Mr. Schmit (W)

**267C. Advanced Reinforced Concrete Design.** (Formerly numbered Mechanics and Structures 267C.) Prerequisite: course 167B. Ultimate strength and seismic design considerations. Concrete mechanical properties. Columns: stability, biaxial bending. Slab design. Slab yield line theory. Footings. Joint design. Bracing systems: diaphragms, trusses, and shear walls. Braced and unbraced frame design for gravity, wind, and earthquake loads.

Mr. Selna (Sp)

**267E. Structural Loads and Safety for Civil Structures.** (Formerly numbered Mechanics and Structures 267E.) Prerequisites: courses 167A or 167B or 167C, and M169A (may be taken concurrently). Concept of structural safety. Factors of safety and quantification of loads in building codes. Probability of failure and quantification of loads in probabilistic approaches to structural safety. Relationships between factor of safety and probability of failure.

Mr. Hart (F, odd years)

**267S. Advanced Steel Design.** (Formerly numbered Mechanics and Structures 267S.) Prerequisite: course 167A. Working and ultimate load methods. Emphasis on seismic design. Brittle fracture, fatigue, and local buckling. Compression members. Element design for complex loading, including torsion. Braced and unbraced frames. Drift requirements. Steel frame design for gravity, wind, and earthquake loads.

Mr. Rea (W)

**268A. Experimental Structural Analysis.** (Formerly numbered Mechanics and Structures 268A.) Prerequisite: consent of instructor. Study of modern techniques in experimental mechanics, including dimensional analysis, measurement theory, and measurement techniques. Emphasis on techniques of modern optics (e.g., holography). Moiré analysis, photoelasticity and speckle interferometry.

Mr. Fournay

**M269A. Dynamics of Structures.** (Same as Mechanical, Aerospace, and Nuclear Engineering M269A.) Prerequisite: course M169A. 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.

Mr. Dong (F)

**M269C. Introduction to Probabilistic Dynamics.** (Same as Mechanical, Aerospace, and Nuclear Engineering M269C.) Prerequisite: course M169A. 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.

Mr. Hart (Sp, even years)

**274J. Multiattribute Decision Making with Conflicting Objectives.** (Formerly numbered Engineering Systems 274J.) Prerequisite: course 174A or Computer Science 274A or equivalent. The structuring of models for multiattribute decision problems. The theory of quantifying preferences over multiple objectives. Multiattribute utility theory. The structuring of models for conditional strategies under conflict situations. The theory of metagames and metarationality.

Mr. Pearl, Mr. Rubinstein (W)

**274K. Perspectives of Systems Representation.** (Formerly numbered Engineering Systems 274K.) Prerequisite: course 274J 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.

Mr. Rubinstein (Sp)

**284A. Surface Water Hydrology.** (Formerly numbered Engineering Systems 284A.) Prerequisite: course 184A or consent of instructor. In-depth study of the surface water components of the hydrologic cycle. Instantaneous unit hydrograph, dynamic wave equations, rainfall-runoff models using system investigation and physical hydrology. Stochastic hydrology: time-series analysis, Markovian streamflow generating models, and generation of multivariate synthetic streamflows. Applications.

Mr. Dracup, Mr. W. Yeh (W)

**284B. Groundwater Hydrology.** (Formerly numbered Engineering Systems 284B.) Prerequisite: course 184A or consent of instructor. Theory of the 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. Seawater intrusion. Numerical methods. Applications.

Mr. Dracup, Mr. W. Yeh (Sp)

**284C. Water Resources Systems Engineering.** (Formerly numbered Engineering Systems 284C.) Prerequisite: course 184B. Application of mathematical programming techniques to water resources systems. Topics include reservoir regulation, optimal timing, sequencing and sizing of water resources projects, and real-time conjunctive operations of ground water and surface water resource systems. Emphasis on the management of water quality.

Mr. Dracup, Mr. W. Yeh (Sp)

**284D. Advanced Water Quality Control Systems.** (Formerly numbered Engineering Systems 284D.) Prerequisite: course 184D. Physical, chemical, and biological bases for design of advanced water and wastewater quality control systems. Includes treatment processes, standards, and requirements; concepts in physical, organic, and colloidal chemistry; bacteriology and limnology; reservoir, stream, estuary, and ocean outfall management; water quality modeling. Field trips.

Mr. Stenstrom (W)

**284E. Saline Water Conversion.** (Formerly numbered Engineering Systems 284E.) Prerequisites: Chemical Engineering 137A and Chemistry 110A and 110B, or equivalent. Current research and development in saline water conversion, in the fields of distillation, electrodialysis, freezing, reverse osmosis, and chemical extraction. A study of process optimization and economics of combined water power systems.

Mr. Stenstrom (W)

**284F. Selected Topics in Water Resources (2 units).** (Formerly numbered Engineering Systems 284F.) Prerequisites: graduate standing, consent of instructor. Review of recent research and development in the management of water resources. Water and hydroelectric supply systems. Water quality management. Water law and institutions. Economic planning and optimization of water resources development. May be repeated once for credit.

Mr. Dracup, Mr. Stenstrom (F)

**284G. Engineering Economics of Water and Related Natural Resources.** (Formerly numbered Engineering Systems 284G.) Recommended prerequisites: one or more courses from Economics 1, 2, 100, 101A, and 101B, or consent of instructor. Economic theory and applications in the management of water and related natural resources; application of price theory to water resource management, electric power supply, petroleum and natural gas management, and renewable resources; benefit-cost analysis with applications to water resources planning.

Mr. Dracup (F)

**284H. Mathematical Models for Water Quality Management.** (Formerly numbered Engineering Systems 284H.) Prerequisite: course 184D. Development of mathematical models relating pollutant inputs to water quality. Scheduling of treatment plants capacity expansion. Regional water quality system models. Emphasis on use of analytical and simulation techniques to manage water quality in streams, lakes, and estuaries.

Mr. Stenstrom (Sp)

**285A. Shear Strength of Soil and Stability of Slopes.** (Formerly numbered Mechanics and Structures 285A.) Prerequisite: course 185A. 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.

Mr. Lade (F)

**285B. Foundation Engineering.** (Formerly numbered Mechanics and Structures 285B.) Prerequisites: courses 185A, 285A. 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.

Mr. Oner (W)

**285C. Soil Dynamics.** (Formerly numbered Mechanics and Structures 285C.) Prerequisites: courses 185A, 285A. Design of foundation for vibrating equipment. Strength and stress-strain relations for soil under cyclic loading conditions. Fundamentals of earthquakes as applied to seismic response of earth structures and foundations. Design of embankments, retaining walls, and foundations for earthquake loading.

Mr. Lade (Sp)

**285D. Earth Pressures and Earth Retaining Structures.** (Formerly numbered Mechanics and Structures 285D.) Prerequisites: course 185A, graduate standing. The basic concepts of the theory of earth pressures behind retaining structures are presented, with special application to the design of retaining walls, bulkheads, and excavation bracing; the effects of flexibility of bulkheads, creep in soils, and construction techniques are also discussed in detail.

Mr. Lade (W)

**285E. Seminar on Advanced Topics in Soil Mechanics.** (Formerly numbered Mechanics and Structures 285E.) Prerequisites: graduate standing in engineering and consent of instructor. Topics may vary each quarter 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.

Mr. Lade

**285L. Advanced Soil Mechanics Laboratory.** (Formerly numbered Mechanics and Structures 285L.) Lecture, one hour; laboratory, six hours. Prerequisites: courses 185A, 185B, 285A, 285B. 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.

Mr. Lade (Sp)

**286A. Earthquake Engineering.** (Formerly numbered Mechanics and Structures 286A.) Prerequisite: course M169A or 265A or 285A or Mechanical, Aerospace, and Nuclear Engineering 256A. Engineering seismology: strong earthquake motion, microtremors, wave velocity and damping, induced vibrations, spectral analysis. Risk of earthquakes and fault breaks. Site evaluation. Structure-earth system response. Introduction to earthquake resistive design of buildings, bridges, and dams. Theory and field experiments.

Mr. Selna (W)

**286B. Structural Response to Ground Motions.** (Formerly numbered Mechanics and Structures 286B.) Prerequisite: course M269A or consent of instructor. 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.

Mr. Rea (Sp)

**289AA-289ZZ. Seminar: Current Topics in Civil Engineering (2 to 4 units).** (Formerly numbered Mechanics and Structures 289AA-289ZZ.) 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. Mr. Fournay (F,W,Sp)

**M292A. Asymptotic and Perturbation Methods I.** (Formerly numbered Mechanics and Structures M292A.) (Same as Mathematics M274A.) Prerequisites: Chemical Engineering M192A or Mechanical, Aerospace, and Nuclear Engineering M192A and Mathematics 132, or equivalent. The fundamental mathematics of asymptotic analysis, asymptotic expansions of Fourier integrals, method of stationary phase. Watson's lemma, method of steepest descent, uniform asymptotic expansions, elementary perturbation problems. Mr. Muki (F)

**M292B. Asymptotic and Perturbation Methods II.** (Formerly numbered Mechanics and Structures M292B.) (Same as Mathematics M274B.) Prerequisites: Chemical Engineering M192A or Mechanical, Aerospace, and Nuclear Engineering M192A and Mathematics 132, or equivalent. The fundamental mathematics of asymptotic analysis, limit process expansions, regular and singular perturbation problems, matching of asymptotic expansions, multiple-scale methods, application to partial differential equations, near and far fields. Mr. Muki (W)

**298. Seminar in 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. A teaching apprenticeship under the 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. Mr. Nelson (F,W,Sp)

**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 the 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 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.

## Computer Science

3731 Boelter Hall, 825-6396

### Professors

Algirdas A. Avizienis, Ph.D., *Chair*  
Daniel M. Berry, Ph.D.  
Bertram Bussell, Ph.D.  
David G. Cantor, Ph.D.  
Alfonso F. Cardenas, Ph.D.  
Jack W. Carlyle, Ph.D.  
Wesley W. Chu, Ph.D.  
Joseph J. DiStefano, III, Ph.D.  
Gerald Estrin, Ph.D.  
Thelma Estrin, Ph.D., *in Residence, Assistant Dean*  
Sheila A. Greibach, Ph.D.  
Walter J. Karplus, Ph.D.  
Leonard Kleinrock, Ph.D.  
Allen Klinger, Ph.D.  
David F. Martin, Ph.D.  
Lawrence P. McNamee, Ph.D.  
Michel A. Melkanoff, Ph.D.  
Richard R. Muntz, Ph.D.  
Judea Pearl, Ph.D.  
Gerald J. Popek, Ph.D.  
George L. Turin, Sc.D., *Dean*  
Jacques J. Vidal, Ph.D.  
Chand R. Viswanathan, Ph.D.  
Thomas A. Rogers, Ph.D., *Emeritus*

### Associate Professors

Milos D. Ercegovac, Ph.D.  
Mario Gerla, Ph.D.  
D. Stott Parker, Jr., Ph.D.  
David A. Rennels, Ph.D.

### Assistant Professors

Michael G. Dyer, Ph.D.  
Margot Flowers, Ph.D.  
Eliezer M. Gafni, Ph.D.  
Robert C. Uzgalis

### Senior Lecturer

Leon Levine, M.S.

### Adjunct Professor

Norman C. Dalkey, Ph.D.

### Adjunct Associate Professors

Emily P. Friedman, Ph.D.  
Tomas Lang, Ph.D.

### Adjunct Assistant Professor

Terence E. Gray, Ph.D.

### Adjunct and Visiting Lecturers

William B. Kehl, A.M., *Adjunct*  
Thomas M. Simundich, Ph.D., *Visiting*  
Vance C. Tyree, M.S., *Visiting Senior*

## Scope and Objectives

Computer science is concerned with computer-related information processing, systems, and applications. 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 science theory, computer system architecture, network

modeling and analysis, programming languages and systems, and methodology of applications of computers.

The undergraduate and graduate studies and research projects in computer science are supported by extensive computing resources. The Center for Experimental Computer Science (CECS) is comprised of nearly a dozen laboratories specializing in areas such as computer communications, VLSI design, and artificial intelligence. The Cognitive Systems Laboratory is engaged in studying computer systems which emulate or support human reasoning. The Biocybernetics Laboratory is devoted to multidisciplinary research involving the application of engineering and computer science methods to problems in biology and medicine.

The Bachelor of Science degree may be attained through either the computer science and engineering program or the interdepartmental mathematics/computer science program described in Chapter 5 on the College of Letters and Science.

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. The Graduate School of Management and the Computer Science Department offer 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 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 the electronic design, based on solid-state physics concepts, through logic design, integrated circuit selection and design, MSI, LSI, and VLSI concepts and device utilization, machine language design, implementation and programming, operating system concepts, system programming, 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 (186 minimum units required):

(1) Five core courses: Computer Science 10C, 20, 30, Materials Science and Engineering 14, and one course in numerical analysis

selected from System Science 124A, Mathematics 140A, 140B, 140C, 141A, 141B.

(2) Computer Science 130, 131, 141, 151A, 151B, 181, Electrical Engineering 110A, 116A, 116B, 116C; eight laboratory units from Computer Science 152A, 152B, 171L, and Electrical Engineering 100L or 116N; Civil Engineering 106A (satisfies the engineering economics requirement); Chemical Engineering M192A or Mechanical, Aerospace, and Nuclear Engineering M192A; one course in probability and statistics selected from Mathematics 152A, System Science 120A, or Computer Science 112.

(3) Two elective courses from Computer Science 100 through 199 or Electrical Engineering 115A, 115D, 116D.

(4) English 3; Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61; Physics 8A/8AL, 8B/8BL, 8C/8CL, 8D/8DL; one life science course.

(5) Seven courses from the humanities, social sciences, and/or fine arts approved list (at least three must be upper division; at least three — with two upper division — must be in the same academic department or otherwise reflect coherence with respect to subject matter; and one must satisfy the engineering and science in society requirement).

(6) Three free elective courses.

## Graduate Study

For information on graduate admission to the computer science program and requirements for the M.S., Engineer, and Ph.D. degrees, see "Graduate Study" at the beginning of this chapter.

### Computer Science Breadth Requirement

Candidates for the M.S. or 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 or related subjects selected from the following two groups:

Group 1 (four required courses or equivalent): Computer Science 141, 151A, 151B, 181.

Group 2 (two required courses or equivalent): Computer Science 111, 112, 130 or 131 or 132, 171 or 174, 172 or 173 or 270A.

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.

In addition, students must complete Computer Science 201 with a grade of Satisfactory.

Students in the Computer Science Department who wish to receive a degree in engineering rather than in computer science should check with the department for details of the breadth requirement for engineering majors.

### M.B.A./M.S.-Computer Science

The 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. (Master of Business Administration) in three academic years. Students should request all application materials from the M.B.A. Admissions Office, Graduate School of Management.

## Lower Division Courses

**5. Computer Literacy and Appreciation.** (Formerly numbered Engineering 5.) Lecture, three hours; laboratory, one hour. An introduction to computers for students without prior experience. The course surveys computer technology, computer applications, and how machines represent and process information. Students gain insight into the development, power, limitations, and social impact of modern computer systems.

Mr. Bussell

**10C. Introduction to Programming.** (Formerly numbered Engineering 10C.) Lecture, four hours; recitation, two hours. Recommended for mathematics/computer science and engineering majors (emphasis on numerical problems). Open to graduate students on S/U grading basis only. Not open to students with credit for course 10F or 10S. Exposure to computer organization and capabilities. Basic principles of programming (using Pascal as the example language): algorithmic, procedural problem solving. Program design and development. Control structures and data structures. Human factors in programming and program design.

Mr. Levine (F,W,Sp)

**10F. Introduction to Programming/Fortran.** (Formerly numbered Engineering 10F.) Lecture, four hours; recitation, two hours. Recommended for Chemical Engineering, Electrical Engineering, and Mechanical, Aerospace, and Nuclear Engineering Department majors (emphasis on numerical problems). Open to graduate students on S/U grading basis only. Not open to students with credit for course 10C or 10S. Description and use of Fortran programming language. Selected topics in programming techniques. Programming and running of several numeric problems.

**10S. Introduction to Programming.** (Formerly numbered Engineering 10S.) Lecture, four hours; recitation, two hours. Recommended for all majors except mathematics/computer science and engineering (emphasis on nonnumerical problems). Open to graduate students on S/U grading basis only. Not open to students with credit for course 10C or 10F. Exposure to computer organization and capabilities. Basic principles of programming (using Pascal as the example language): algorithmic, procedural problem solving. Program design and development. Control structures and data structures. Human factors in programming and program design.

Mr. Levine (F,W)

**20. Programming and Problem Solving (6 units).** Lecture, four hours; laboratory, four hours. Prerequisite: course 10C or consent of instructor. Open to graduate students on S/U grading basis only. Students design and develop programs solving several problems of intermediate complexity drawn from various disciplines, using an assembly language and a high-level language. Machine organization, programming techniques, algorithm analysis, and data structures. Students develop programming sophistication through intensive individual laboratory work.

Mr. Berry (F,W,Sp)

**30. Introduction to Computer Operating Systems.** Lecture, four hours; laboratory, two hours. Prerequisite: course 20. Open to graduate students on S/U grading basis only. Introductory course on functions, design principles, and use of modern computer systems. Overview of batch and time-sharing systems. Functional description of assemblers, compilers, linkage editors, loaders. Job control language, overlays, file structures, buffering, protection. Assignments include problems on the computer and the design of simple O/S functions.

Mr. McNamee, Mr. Muntz (F,Sp)

**99. Individual Programming Projects (2 to 4 units).** Prerequisite: course 10C or consent of instructor. Intended for students wishing to learn individually new programming languages and for students wishing to make up deficiencies so as to bring them to the level of course 20. Students design, check-out, and run programs in various programming languages.

Mr. Melkanoff

## Upper Division Courses

**111. Systems Programming.** Lecture, four hours; laboratory, two hours. Prerequisites: courses 30, 141. Introduction to the design and performance evaluations of modern operating systems. Mapping and binding of addresses. The organization of multiprogramming and multiprocessing systems; interrupts, process model, and interlocks. Resource allocation models and the problem of deadlocks. Job control and system management.

Mr. Gerla, Mr. Muntz (F,Sp)

**112. Computer System Modeling Fundamentals.** Prerequisite: upper division standing. Basic tools for performance evaluation and design of distributed computer systems, including probability; transforms; Markov chains; queueing theory; counting; graphs; network flows; computational graph models. Examples are drawn from the computer systems field.

Mr. Kleinrock (F,Sp)

**130. Software Engineering.** (Formerly numbered course 234B.) Lecture, four hours; laboratory, two hours. Prerequisite: course 20. Structured programming, program proving, modularity, abstract data types, composite design, program testing, team programming.

Mr. Berry (Sp)

**131. Programming Languages.** Lecture, four hours; laboratory, two hours. Prerequisite: course 20. The main objective is to study, compare, and evaluate programming languages, in particular commercially available languages: Fortran, Algol 60, Cobol, PL/1, and Algol 68. Additional topics as set by instructor.

Mr. Berry, Mr. Cardenas (F,W,Sp)

**132. Compiler Construction.** Lecture, four hours; laboratory, two hours. Prerequisite: course 131 or consent of instructor. Modern compiler structure; design of syntax and lexical analyzers; semantic analysis and run-time environment; program and data structure; code optimization.

Mr. D. Martin (Sp)

**141. Basic Methods of Data Organization.** Prerequisite: course 20. Fundamental techniques for organizing and manipulating data, stressing relationships to performance, time/storage trade-offs. Sequential and linked storage allocation for linear lists, multi-linked structures. Trees: implementation, traversals, mathematical properties. Dynamic storage allocation. Topics include sorting-searching, algorithmic analysis, graph theory, concepts underlying file management.

Mr. Gerla, Mr. Klinger (F,W,Sp)

**151A. Computer System Architecture I (Introductory).** Lecture, four hours; recitation, two hours. Prerequisites: course 10C, college-level physics (electricity and magnetism). Corequisite for mathematics/computer science majors and engineering undergraduates specializing in computer science and engineering: course 152A. Introduction to computer architecture. Description of machine organization and operation. Information: its representation and manipulation. Combinational logic design with ICs and MSI devices. Sequential circuits, storage elements, and MSI packages. Arithmetic and arithmetic-logic units.

Mr. Bussell, Mr. Ercegovic (F,W,Sp)

**151B. Computer System Architecture II (Intermediate).** Lecture, four hours; recitation, two hours. Prerequisite: course 151A. Corequisite for mathematics/computer science majors and engineering undergraduates specializing in computer science and engineering: course 152B. Formal description of machine organization. Effects on machine organization of instruction sets and formats; addressing structures; memory organization and management; control sequence generator; I/O processing and interrupts; reliability aspects.

Mr. Bussell, Mr. Ercegovic (F,W,Sp)

**152A. Introductory Digital Circuits Laboratory (2 units).** Prerequisite: course 10C. Corequisite: course 151A. Familiarization with design and interconnection of logic circuits and networks through implementation and debugging procedures, including experience with printed circuit design.

Mr. Bussell, Mr. Rennels (F,W,Sp)

**152B. Digital Systems Laboratory (2 units).** Corequisite: course 151B. A computer-based laboratory which probes computer architecture through construction simulation and measurement of digital subsystems.

Mr. Bussell, Mr. Rennels (F,W,Sp)

**171. On-Line Computer Systems.** Prerequisite: senior standing or consent of instructor. A survey of fundamentals, with emphasis on hardware and systems concepts. Adapting digital computers to interfaces, including multiprogramming, interrupt, and time-sharing considerations. Digital communication, remote consoles, sampling, quantizing, multiplexing, analog-digital conversation, and data reconstruction.

Mr. Karplus, Mr. Levine (F,W,Sp)

**171L. Real-Time Systems Laboratory (2 to 4 units).** Laboratory, four to eight hours. Prerequisites: senior standing and consent of instructor. Recommended: courses 171 (may be taken concurrently) and 152A. 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 by consent of instructor.

Mr. Carlyle (F,W,Sp)

**172. Simulation and Models.** Prerequisite: course 20. Model formulation and programming for discrete event systems in simulation languages (e.g., GPSS, SIMSCRIPT). The simulation data base and considerations for language development. Statistical considerations: design of experiments, random number generation, analysis of model results. Computer exercises.

Mr. Karplus, Mr. McNamee (F)

**173. Random Data Analysis and Measurement Procedures.** Prerequisite: System Science 121C. Provides practical aspects of random data analysis and measurement procedures. Includes statistical properties of random data, correlation, spectral density, input/output relationships, statistical errors, coherence functions, data acquisition, and processing techniques.

Mr. McNamee

**174. Elements of Computer Graphics.** Lecture, three hours; laboratory, one hour. Prerequisites: courses 131, 141, 171, or consent of instructor. Hardware and software elements of computer graphics systems, including problems of intelligent terminals, communications, and graphics languages. Application areas and cost effective uses of interactive graphics. Design and development of interactive graphics programs to solve representative problems in various application areas.

Mr. Vidal (F,Sp)

**181. Theoretical Models in Computer Science.** (Formerly numbered M123B.) Prerequisite: senior standing or consent of instructor. Sets, strings, and languages. Phrase-structure languages. Finite-state languages and finite-state automata. Context-free languages and pushdown store automata. Unrestricted phrase-structure languages and Turing machines. Context-sensitive languages and linear-bounded automata. Elementary decision problems of automata and languages.

Ms. Greibach, Mr. Parker (F,W,Sp)

**183. Discrete Systems and Automata.** (Formerly numbered Engineering 128D.) Prerequisite: two quarters of lower division mathematics or comparable experience with mathematical ideas, such as in linguistics or basic courses in logic or computer programming. An introductory course emphasizing finite-state systems: graphs, machines, languages, regular expressions, coding, computing; memory, system identification, diagnosis; design considerations.

Mr. Carlyle

**196A. Introduction to Topics in Bioengineering (2 units).** (Formerly numbered Engineering 196A.) Prerequisite: calculus. History, motivation, and current directions in bioengineering. Bioinstrumentation and measurement. Biomaterials. Biomechanics. Biosystems. Health services and patient protection. Human factors engineering. Orthotic/prosthetic systems and sensory aids. P/NP grading.

Mr. DiStefano (F,Sp)

**M196B. Modeling and Simulation of Biological Systems.** (Formerly numbered Engineering M196B.) (Same as Medicine M196B.) Lecture, four hours; laboratory, two hours. Prerequisite: calculus. Introduction to classical and modern systems and modeling and simulation methods for studying biological systems. Includes multicompartamental modeling, multi-exponential curve fitting, and simulation laboratory projects. Applications in physiology and medicine. Life science and medical students are encouraged to enroll.

Mr. DiStefano (F,Sp)

**199. Special Studies (2 to 8 units).** Prerequisites: upper division standing and consent of instructor. Individual investigation of a selected topic to be arranged with a faculty member in the department. Enrollment request forms are available in the department office. Occasional field trips may be arranged. May be repeated for credit.

(F,W,Sp)

## Graduate Courses

**201. Computer Science Seminar (2 units).** Prerequisite: graduate standing in computer science. Lectures on current research topics in computer science. May be repeated for credit. S/U grading.

(F,W,Sp)

**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.

Mr. Estrin

**212A. Queueing Systems Theory.** Prerequisites: course 112 and System Science 120A, or consent of instructor. Resource sharing issues and the theory of queueing (waiting-line) systems. Review of Markov chains and baby queueing theory. Method of stages. M/E/1. E/M/1. Bulk arrival and bulk service systems. Series-parallel stages. Fundamentals of open and closed queueing networks. Intermediate queueing theory: M/G/1; G/M/m. Collective marks. Advanced queueing theory: G/G/1; Lindley's integral equation; spectral solution. Inequalities, bounds, approximations.

Mr. Kleinrock (W)

**212B. Queueing Applications: Scheduling Algorithms and Queueing Networks.** Prerequisite: course 212A. Not open for full credit to students with credit for former course 211A prior to Winter Quarter 1981. 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 → M; computational algorithms for performance measures; asymptotic behavior and bounds; approximation techniques — diffusion — iterative techniques; applications.

Mr. Kleinrock, Mr. Muntz (W)

**215. Computer Communications and Networks.** (Formerly numbered 212C and 255A.) Prerequisite: course 112. Not open for full credit to students with credit for former course 212C or 255A prior to Winter Quarter 1981. Resource sharing; computer traffic characterizations; multiplexing; network structure; packet switching and other switching techniques; the 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.

Mr. Chu, Mr. Kleinrock (F,Sp)

**216. Distributed Multiaccess Control in Networks.** Prerequisites: courses 212A, 215. Topics drawn from the field of distributed control and access in computer networks are discussed, including terrestrial distributed computer networks; satellite packet switching; ground radio packet switching; local network architecture and control.

Mr. Kleinrock (W,Sp)

**218A. Network Protocol and Processor Design.** Prerequisite: course 112. Recommended: course 215. Computer network architecture review. Protocol levels: subnet, network access, transport, application. Protocol specification and verification. Network processor architectures (single processor; multiprocessor). Task partitioning. Performance models (throughout, delay, reliability).

Mr. Gerla (W)

**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 the instructor has developed special proficiency as a consequence of research interests. Students report on selected topics. May be repeated for credit by 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.

Mr. Melkanoff (W)

**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.

Mr. Melkanoff (Sp)

**231B. Advanced Topics in Computer Language Design.** Prerequisites: courses 132, 141, 181, 232A, 232B. Treatment of current topics in computer language, including design goals of modern languages, levels of abstraction, methodologies for standardization, and proposals for new problem-oriented and extensible languages. Enrollment limited to allow individual application of language design principles.

Mr. Uzgalis (W)

**232A. Operational Semantics of Programming Languages.** Prerequisites: courses 131 and 181 (may be taken concurrently). Interpreter models of programming language semantics: information structure models, Vienna definition language, lambda calculus, LISP definition, interpreter equivalence and correctness.

Mr. Berry (F)



**232B. Semantics of Programming Languages.** Prerequisite: course 181 or equivalent or consent of instructor. Syntax-directed semantics of context-free languages. Knuthian semantic systems (K-systems) and their mathematical formulation. K-system formulation of programming language semantics; translational and denotational semantics. Properties of K-systems; equivalence of K-systems. Applications of current research interest. Mr. D. Martin (F)

**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. Mr. D. Martin (Sp)

**234C. High-Level Language Computer Architecture.** Prerequisites: courses 131, and 232A or 232B. A study of machine architectures to facilitate direct or nearly direct execution of high-level languages: Algol-like machines, including Burroughs B6700, microprogramming and microprogrammable machines, measurements and their use in architecture design. Mr. Berry

**239. Current Topics in Computer Science Programming Languages and Systems (2 to 16 units).** Prerequisite: consent of instructor. Review of current literature in an area of computer science programming languages and systems in which the instructor has developed special proficiency as a consequence of research interests. May be repeated for credit with topic change.

**241AL. Data Management Systems (6 units).** (Formerly numbered 241A.) Lecture, four hours; laboratory, two hours. Prerequisites: courses 131, 141, or equivalent. File management in programming I

**241AL. Data Management Systems (6 units).** (Formerly numbered 241A.) Lecture, four hours; laboratory, two hours. Prerequisites: courses 131, 141, or equivalent. File management in programming languages, storage devices, and operating systems. Secondary index organizations. Data base systems architecture, design, and models (network, hierarchical, and relational). Logical and physical structures. Query languages. Commercial data base systems. Data base design, performance, security, and integrity. Mr. Cardenas, Mr. Muntz, Mr. Popek (F,W,Sp)

**241B. Data Base, Software, and Information Systems.** Prerequisites: course 131 or Management 113B and course 241A, or equivalent. Data base systems technology. Application program development technology. Information system development cycle and methodology. Systems analysis. Feasibility and cost/effectiveness studies. Software architecture, management, costing. Automated program and data base generation. Problem statement languages. Various topics at instructor's discretion, emphasizing data base technology. Mr. Cardenas (W)

**242A. Privacy and Security in Computer Information Systems.** Prerequisite: course 111 or consent of instructor. Analysis of the technical difficulties of producing secure computer information systems that provide guaranteed controlled sharing, with emphasis on software models and design. Examination and critique of current systems and practices. Possible certifiability of such systems. Relevant social issues. Mr. Popek

**243A. Relational Data Bases.** Prerequisites: courses 131, 141. The relational model of data: definition and operations; relational languages. Relational data bases: experimental and commercial; design methodology. Mr. Parker (W)

**243B. Abstract Data Types and Program Specification.** Prerequisites: courses 141, 181. The 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. The class includes programming exercises.

**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 the instructor has developed special proficiency as a consequence of research interests. Students report on selected topics. May be repeated for credit by consent of instructor.

**251A. Advanced Computer Architecture.** Prerequisites: courses 111, 151A, 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. Mr. Ercegovac, Mr. Rennels (F,W)

**252A. Computer Science Design: Arithmetic Processors.** Prerequisite: course 251A or consent of instructor. Concepts of number systems, digital numbers, algorithms; logic and organization of digital arithmetic processors; conventional arithmetic; algorithm acceleration; floating-point and significance arithmetics; redundant, signed-digit, residue number systems; error detecting codes for digital arithmetic; algorithm evaluation by analysis and simulation. Mr. Avizienis, Mr. Ercegovac (W)

**253A. Computer System Design: Fault Tolerance.** Prerequisite: course 251A. Specification of fault-tolerance: fault classes, measures of reliability. Fault masking, fault detection, and system recovery algorithms. Methodology of implementation. Analytic modeling and evaluation. Design of fault-tolerance systems. Tolerance of man-made faults. Fault-tolerant software. Mr. Avizienis, Mr. Rennels (W)

**253B. Advanced Topics in Fault-Tolerant Computing.** Prerequisite: course 253A. Analysis and discussion of the modeling, design, and evaluation of fault-tolerant computer systems. Emphasis on current research results and new systems in the stages of design and development. May be repeated for credit with topic change.

Mr. Avizienis, Mr. Rennels (Sp)

**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.

Mr. Chu, Mr. Rennels (F)

**255B. Distributed Processing and Distributed Data Base System.** Prerequisite: course 255A. Interprocess communications, protocol, interface design, bus structures, system reconfiguration, error recovery. Task partitioning, performance optimization, microprocessor based distributed processing system. File allocation, directory design, deadlock, consistency, synchronization, file availability, query optimization, data translation. Examples, trade-offs, and design experiences. Mr. Chu (W)

**256A. Interactive Computer Graphics.** Prerequisite: course 174 or equivalent. Current topics in interactive computer graphics system design, development, and applications. Mr. Bussell (Sp)

**257A. Computer System Design: Comparative Architecture and Synthesis Methods.** Prerequisite: course 252A. Advanced topics in computer system architecture. Important properties of computer systems and methods for modeling, evaluating, and synthesizing them. Mr. Estrin (W)

**M258A. LSI in Computer System Design.** (Formerly numbered M258A-M258B-M258C.) (Same as Electrical Engineering 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. Students learn fundamental design techniques that can be used to implement complex integrated systems on a chip.

Mr. Avizienis, Mr. Viswanathan (F,W)

**M258B-M258C. LSI in Computer System Design.** (Formerly numbered M258A-M258B-M258C.) (Same as Electrical Engineering M258B-M258C.) 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.

Mr. Avizienis, Mr. Viswanathan (W, M258B; Sp, M258C)

**259. Current Topics in Computer Science System Design/Architecture (2 to 16 units).** Prerequisite: consent of instructor. Review of current literature in an area of computer science system design in which the instructor has developed special proficiency as a consequence of research interests. Students report on selected topics. 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. Mr. Dyer, Ms. Flowers (F or W)

**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. Mr. Dyer, Ms. Flowers (W or Sp)

**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 AI 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. Mr. Dyer, Ms. Flowers (F,W)

**264B. Artificial Intelligence Programming II.** Prerequisite: course 264A or consent of instructor. Techniques of logic programming. AI programming languages (e.g., PROLOG, AMORD, DUCK, CONNIVER, PLANNER, QA4, KRL, ACTORS, etc.) and AI features (e.g., nonmonotonic logics, data-dependencies for truth maintenance, meta-rules, semantic networks, frame-based systems). Mr. Dyer, Ms. Flowers (W or Sp)

**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. Mr. Dyer, Ms. Flowers (W or Sp)

**270A. Computer Methodology: Advanced Numerical Methods.** Prerequisites: graduate standing in computer science or engineering, and System Science 124A 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.

Mr. Carlyle, Mr. Karplus (F,Sp)

**271A. Computer Methodology: Continuous Systems Simulation.** Prerequisites: course 171 and System Science 124A. The organization, operation, and areas of application of analog-digital computer systems. Error analysis, numerical analysis aspects, digital simulation languages for continuous systems characterized by ordinary differential equations. Mr. Karplus, Mr. Levine (W)



**271B. Computer Methodology: Distributed Parameter Systems.** Prerequisite: System Science 124A. A survey of the mathematical formulation and computer solution of engineering field problems governed by partial differential equations. Emphasis on digital simulation methods, including finite difference approximations, Monte Carlo methods, and the use of modern problem-oriented languages.

Mr. Karplus, Mr. Vidal (F)

**271C. Seminar in Advanced Simulation Methods (2 units).** Prerequisite: course 271A or equivalent. Discussion of advanced topics in the 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 quarter. May be repeated for credit. S/U grading.

Mr. Karplus (F,W,Sp)

**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.

Mr. McNamee (W)

**274A. Problem Solving and Decision Making.** (Formerly numbered M274A.) Prerequisite: Mechanical, Aerospace, and Nuclear Engineering 193A or equivalent. Formal models of problem structures. Heuristic techniques for mechanized problem solving. Foundations of quantitative coding of qualitative information. Theories of subjective probabilities and utility. Relation between artificial intelligence and decision analysis. Information processing models of human decision making and problem solving behavior.

Mr. Pearl (F)

**274B. Knowledge-Based Systems.** (Formerly numbered M274B.) Prerequisite: course 274A or 277A or consent of instructor. 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.

Mr. Pearl (W)

**274C. Computer Methods of Data Analysis and Model Formation.** (Formerly numbered M274C.) Prerequisite: Mechanical, Aerospace, and Nuclear Engineering 193A or System Science 120A or equivalent or consent of instructor. Techniques of using computers to interpret, summarize, and form theories of empirical observations. Mathematical analyses of trade-offs between the computational complexity, storage requirements, and precision of computerized models.

Mr. Pearl (W)

**274Z. Current Topics in Cognitive Systems.** (Formerly numbered M274Z.) Prerequisites: consent of instructor and additional prerequisites for each offering as announced in advance by the 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.

Mr. Pearl (W)

**275A. Information Processes in Nervous Systems.** Prerequisite: consent of instructor. Conceptual discussion of acquisition and transfer of information in the nervous system and of the role of computers in the analysis and interpretation of neurophysiological data.

Mr. Vidal (W)

**276A. Statistical Pattern Recognition.** Prerequisite: graduate standing. Recommended: background in probability, such as System Science 120A, Mathematics 150A. Computer methodology in the processing of large data sets. Multidimensional measurements. Adaptation and learning the mean of a normal distribution. Bayesian statistics and loss functions. Learning algorithms and clustering processes. Student projects and presentations.

Mr. Klinger (F)

**276B. Structural Pattern Recognition.** Prerequisite: prior background in computer science such as courses 141, 181, or consent of instructor. Descriptive methods in computer processing of patterned data. Picture description languages, primitives, and formal methods for syntactic analysis, abstraction, and recognition. Introductory material on scene analysis and image processing. Applications to alphanumeric characters, chromosome data, and line drawings.

Mr. Klinger (W)

**276C. Machine Pattern Analysis (2 units).** Prerequisite: course 276A or equivalent. Advanced research topics in machine processing of patterned data. Topics in pattern recognition, image processing, artificial intelligence (e.g., scene analysis and data structure). May be repeated once for credit with topic change.

Mr. Klinger (F,W,Sp)

**277A. Heuristic Programming and Artificial Intelligence.** (Formerly numbered 286A.) Prerequisite: course 131 or 181 or consent of instructor. Principles underlying the use of computers to perform tasks generally agreed to require some intelligence. The objective is to develop an understanding of current research regarding the possibilities and limitations of existing experiments in automating intelligent behavior.

Mr. Klinger, Mr. Pearl (F)

**279. Current Topics in Computer Science Methodology (1 to 16 units).** Prerequisite: consent of instructor. Review of current literature in an area of computer science methodology in which the 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.** (Formerly numbered System Science 228CA-228CZ.) Prerequisites: consent of instructor and additional prerequisites for each offering as announced in advance by the department. Selections from design, analysis, optimization, and implementation of algorithms; computational complexity and the general theory of algorithms; algorithms for particular application areas. Subtitles of some current sections: Principles of Design and Analysis (280A); Graphs and Networks (280G). May be repeated for credit by consent of instructor and with topic change.

Ms. Greibach (Sp)

**281A. Computability and Complexity.** (Formerly numbered System Science 228B.) Prerequisite: course 181 (or former course 123B) or compatible background. Concepts fundamental to the 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.

Ms. Greibach, Mr. Parker (F)

**281D. Discrete State Systems.** (Formerly numbered System Science 228D.) 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.

Mr. Carlyle

**284A-284ZZ. Topics in Automata and Languages.** (Formerly numbered 284XA-284XZ.) Prerequisites: course 181 and additional prerequisites for each offering as announced in advance by the 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 by consent of instructor and with topic change.

Ms. Greibach

**287A. Theory of Program Structure.** (Formerly numbered M287A.) Prerequisite: course 181 (or former course 123B). 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.

Ms. Greibach (F)

**288S. Seminar in Theoretical Computer Science (2 units).** Prerequisites: courses 280A, 281A, and 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.

Ms. Greibach (F,W,Sp)

**289A-289ZZ. Current Topics in Computer Theory (2 to 12 units each).** (Formerly numbered 289.) Prerequisite: consent of instructor. Review of current literature in an area of computer theory in which the instructor has developed special proficiency as a consequence of research interests. Students report on selected topics.

**M296A. Biocybernetics I.** (Formerly numbered Engineering Systems M296A.) (Same as Medicine M296A.) Prerequisites: course M196B (may be taken concurrently) and Mechanical, Aerospace, and Nuclear Engineering 171C or equivalent. Development of modern systems/biocybernetic methods applicable to problems in life sciences and medicine. Emphasis on dynamical modeling, advanced analysis methods and their limitations, biological systems quantification (identification), experimental design and hypothesis testing, the limitations of biological data, and computational methods.

Mr. DiStefano (F)

**M296B. Biocybernetics II.** (Formerly numbered Engineering Systems M296B.) (Same as Medicine M296B.) Prerequisite: course M296A. Recommended: Physiology 100 or Biology 166 or equivalent. Continued development of modern systems/biocybernetics methodology and identification of biological systems. Critical survey of their application in the life sciences. The systems viewpoint of regulation in selected biological systems. Applications to human pathophysiology, diagnosis, and therapy.

Mr. DiStefano (W)

**M296C. Seminar: Advanced Topics in Biocybernetics.** (Formerly numbered Engineering Systems M296C.) (Same as Medicine M296C.) Prerequisite: consent of instructor. Interactive seminar on current research topics in biocybernetics. Dynamic systems modeling of physiological processes, with emphasis on specific applications in physiology and clinical medicine. Students are involved in one or more class projects.

Mr. DiStefano (Sp)

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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.

Mr. Avizienis (F,W,Sp)

**497D-497E. Field Projects in Computer Science.** Prerequisite: consent of instructor. Students are divided into teams led by the instructor; each team is assigned an external company or organization which they investigate as a candidate for possible computerization. They submit a team report of their findings and recommendations. In Progress grading.

Mr. Cardenas, Mr. Melkanoff

**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 the 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. Petition forms to request enrollment may be obtained from the Assistant Dean, Graduate Studies. 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. Petition forms to request enrollment may be obtained from the Assistant Dean, Graduate Studies. S/U grading.

**597C. Preparation for Ph.D. Oral Qualifying Examination (2 to 16 units).** Prerequisites: graduate standing in computer science, consent of instructor. Petition forms to request enrollment may be obtained from the Assistant Dean, Graduate Studies. 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. Petition forms to request enrollment may be obtained from the Assistant Dean, Graduate Studies. 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 the Assistant Dean, Graduate Studies. S/U grading.

## Economics/System Science (Interdepartmental)

For details on this undergraduate program, see Chapter 5 on the College of Letters and Science.

## Electrical Engineering

7732 Boelter Hall, 825-2647

### Professors

Nicolaos G. Alexopoulos, Ph.D.  
Frederick G. Allen, Ph.D.  
A.V. Balakrishnan, Ph.D.  
Lee W. Casperson, Ph.D.  
Francis F. Chen, Ph.D.  
Robert S. Elliott, Ph.D.  
Harold R. Fetterman, Ph.D.  
A. Theodore Forrester, Ph.D.  
Nhan Levan, Ph.D.  
Neville C. Luhmann, Jr., Ph.D.  
Jimmy K. Omura, Ph.D.  
H. J. Orchard, M.Sc.  
Izhak Rubin, Ph.D.  
Frederick W. Schott, Ph.D.

Oscar M. Stafsudd, Jr., Ph.D.  
Gabor C. Temes, Ph.D.  
George L. Turin, Sc.D., *Dean*  
Chand R. Viswanathan, Ph.D., *Chair*  
Kang-Lung Wang, Ph.D.  
Paul K.C. Wang, Ph.D.  
Alan N. Willson, Jr., Ph.D.  
Kung Yao, Ph.D.  
Cavour W. Yeh, Ph.D.  
Louis L. Grandi, M.S., *Emeritus*  
William D. Herschberger, Ph.D., *Emeritus*  
Ellis F. King, M.S., *Emeritus*

### Associate Professors

Kenneth W. Martin, Ph.D.  
Dee-Son Pan, Ph.D.  
Jack Willis, B.Sc.

### Assistant Professor

Douglas N. Green, Ph.D.

### Adjunct Professors

Paul T. Greiling, Ph.D.  
William A. Peebles, Ph.D.

### Adjunct Associate Professor

Chandrashekar J. Joshi, Ph.D.  
James B. Forsythe, Ph.D.  
Siegfried G. Knorr, Ph.D.

### Adjunct Assistant Professor

Henry Samuelli, Ph.D.

### Visiting Lecturers

Clifford E. Gilbert, B.Sc.  
Vance C. Tyree, M.S., *Senior*

## Scope and Objectives

Electrical engineering encompasses a wide range of subjects based on the interaction of electric and magnetic fields in matter. Specifically, the fields of study include solid-state materials, solid-state electronics, integrated circuits, microwave and millimeter electronics, quantum and opto-electronics, electromagnetic radiation and propagation, circuit theory, communication and information theory, power electronics, and applied plasma physics. The department is organized into six major fields of study. 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.

Currently there are more than 30 research laboratories in the department in the above areas of study. The department has also established a center for high-speed and high-frequency electronics which integrates research in electronic materials, solid-state devices, integrated circuits, millimeter wave devices and detectors, integrated antennas, computer and communication systems. The center has already been equipped with \$3 million worth of equipment.

## Bachelor of Science in Electrical Engineering

The electrical engineering curriculum gives an excellent background for either graduate study or employment. The two main objectives are

(1) to provide a deep and fundamental education in electrical engineering as well as in basic sciences and mathematics and (2) to provide specialized education in one branch of the electrical engineering field so that the student develops expertise in that branch.

### The Major

Course requirements are as follows (185 minimum units required):

(1) Six core courses: Electrical Engineering 100B, Materials Science and Engineering 14, Mechanical, Aerospace, and Nuclear Engineering 102, System Science 121C, 124A, and one course from Civil Engineering 108, Mechanical, Aerospace, and Nuclear Engineering 103, M105A (or Chemical Engineering M105A).

(2) Electrical Engineering 110A, 110B, 115D, 116A, 117A, and one course from 110C, 116B, 117B, 117Y, 195A; four two-unit courses selected from the laboratory courses offered by the Electrical Engineering Department, Computer Science 152B and, by petition only, Engineering 199B; Civil Engineering 106A (satisfies the engineering economics requirement); Mechanical, Aerospace, and Nuclear Engineering 191A or Mathematics 132 (satisfies the mathematics requirement).

(3) At least three elective courses (12 units) selected from Electrical Engineering 100L, 110C, 116B, 116C, 116E, 116L, 116M, 116N, 195A (circuits); 111A, 111B (electrical energy); 113A, 113L (quantum electronics); 115A, 115B, 115C, 115E, 115F (solid-state); 116D, 198A, 198B (communication engineering); 117B, 117D, 117E, 117L, 117X (electromagnetics); M118 (plasma). The remaining three elective courses (12 units) may be selected either from the list above or, with approval of your adviser, from related electrical engineering courses: Computer Science 151A, 151B, 171, 183, Mechanical, Aerospace, and Nuclear Engineering 171A, 171C, System Science 120A, 120B, 122A, 128A, 128L (systems).

(4) English 3; Chemistry 11A, 11B/11BL; Computer Science 10C or 10F or 10S; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A, 8B, 8C, 8D; one life science elective course.

(5) Six courses from the humanities, social sciences, and/or fine arts approved list (at least three must be upper division; at least three — with two upper division — must be in the same academic department or otherwise reflect coherence with respect to subject matter; and one must satisfy the engineering and science in society requirement).

(6) Three free elective courses from any department, selected by the student in consultation with the adviser to supplement and strengthen the major field electives.

## Graduate Study

For information on graduate admission to the electrical engineering program and requirements for the M.S., Engineer, and Ph.D. degrees and certificate of specialization, see "Graduate Study" at the beginning of this chapter.

## Upper Division Courses

**100. Electrical and Electronic Circuits.** (Formerly numbered Engineering 100.) Lecture, four hours; recitation, one hour. Prerequisites: Mathematics 31A, 31B, 32A, 33A, 33B, Physics 8C. Electrical quantities, circuit principles, signal wave-forms, AC circuits, semiconductor devices, small signal models, amplifiers, electrical and electronic instruments.

Mr. Luhmann (F,W,Sp)

**100B. Engineering Electromagnetics.** (Formerly numbered Engineering 100B.) Lecture, four hours; recitation, one hour. Prerequisites: Physics 8C, Mathematics 32A and 32B, or 33A and 33B. Electromagnetic field concepts; Maxwell's equations; static and quasi-static fields; field energy; energy flow and the Poynting vector; electromechanical interactions; waves in unbounded media and on two-wire transmission lines; reflection and refraction; lossy media; skin effect; analogs to electromagnetic fields.

Mr. Alexopoulos (F,W,Sp)

**100L. Circuit Analysis Laboratory (2 units).** (Formerly numbered Engineering 100L.) Prerequisite: Physics 8C. Corequisite: course 100. Experiments with circuits containing linear and nonlinear devices; transient and steady state behavior of circuits.

Mr. Luhmann (F,W,Sp)

**110A. Basic Circuit Theory I.** (Formerly numbered Engineering 110A.) Lecture, four hours; recitation, one hour. Prerequisite: course 100. The zero-input, zero-state, transient, steady state, and complete response of first-order and second-order circuits. Linear time-invariant networks; step response, impulse response, convolution integral. Sinusoidal steady state analysis. Coupling elements and coupled circuits. The Laplace transform.

Mr. Willson (F,W,Sp)

**110B. Basic Circuit Theory II.** (Formerly numbered Engineering 110B.) Lecture, four hours; recitation, one hour. Prerequisite: course 110A. Elementary graph theory, general methods of analyzing electric circuits. Introduction to state equations, natural frequencies. Properties of network functions. Network theorems. Methods of characterizing two-port networks.

Mr. Orchard (F,W,Sp)

**110C. Passive Network Synthesis.** (Formerly numbered Engineering 110C.) Lecture, four hours; recitation, one hour. Prerequisite: course 110B or equivalent. Properties of positive real functions and tests for positive realness. Synthesis of one- and two-port RLC and two-element kind networks.

Mr. Temes (F)

**111A. Electric Power Systems.** (Formerly numbered Engineering 111A.) Lecture, four hours; recitation, one hour. Prerequisite: course 100. Overall electric power system requirements; typical systems; one-line diagrams. Per-unit quantities; characteristics of machines, transformers, overhead lines, and cables; steady state analysis of systems. Power limits and stability; fault calculations; relays and relay systems.

Mr. Schott (W)

**111B. Electromechanical Energy Conversion.** (Formerly numbered Engineering 111B.) Lecture, four hours; recitation, one hour. Prerequisite: course 100. Energy conversion and power flow in electromechanical interactions; electromechanics of actuators and rotating AC synchronous and induction machines and DC machines. Linear machines.

Mr. Schott (Sp)

**113A. Introduction to Lasers and Quantum Electronics.** (Formerly numbered Engineering 113A.) Lecture, four hours; recitation, one hour. Prerequisite: course 100B or equivalent or consent of instructor. Physical principles and applications of lasers and other quantum electronic devices. Interferometers, crystal optics, gain and saturation phenomena, and gas discharges.

Mr. Casperson, Mr. Stafsudd (F)

**113L. Laser Laboratory (2 units).** (Formerly numbered Engineering 113L.) Laboratory, four hours. Prerequisite or corequisite: course 113A 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.

Mr. Casperson, Mr. Stafsudd (F)

**115A. Fundamentals of Solid-State I.** (Formerly numbered Engineering 115A.) Lecture, four hours; recitation, one hour. Prerequisite: junior standing in engineering. Introductory atomic concepts, quantum mechanical principles, energy level in complex atoms, quantum statistics, crystal structure, energy levels in solids, band theory.

Mr. Fetterman, Mr. Viswanathan (F,Sp)

**115B. Fundamentals of Solid-State II.** (Formerly numbered Engineering 115B.) Lecture, four hours; recitation, one hour. Prerequisite: course 115A. A discussion of the solid-state properties, lattice vibrations, thermal properties, dielectric, magnetic, and superconducting properties.

Mr. Fetterman, Mr. Stafsudd (W)

**115C. Semiconductor Physical Electronics.** (Formerly numbered Engineering 115C.) Lecture, four hours; recitation, one hour. Prerequisite: course 115B. Band structure of semiconductors, homogeneous semiconductors, excess carriers in semiconductors, semiconductor surfaces, optical and thermal properties; application to design of devices.

Mr. Allen, Mr. Pan (Sp)

**115D. The Principles of Design of Semiconductor Devices.** (Formerly numbered Engineering 115D.) Lecture, four hours; recitation, one hour. Prerequisite: senior standing in engineering. Semiconductor technology, Schottky barrier, p-n junction, MOS capacitance, transistor fundamentals, drift transistor, high-frequency properties, field effect transistors, integrated electronics, applications and design of devices.

Mr. Viswanathan, Mr. K. Wang (F,W,Sp)

**115E. Solid-State Electronics Laboratory (2 units).** (Formerly numbered Engineering 115E.) Prerequisite: course 115C. Experimental measurement of electronic, magnetic, thermal, and optical properties of p- and n-type semiconductors as used in the design of devices.

Mr. Allen (W)

**115F. Semiconductor Devices Laboratory (2 units).** (Formerly numbered Engineering 115F.) Prerequisite: course 115D. Design, fabrication, and characterization of junction, field effect, and other semiconductor devices. In particular the student performs various processing tasks such as wafer preparation, oxidation, impurity diffusion, metallization, sintering, and photolithography.

Mr. K. Wang (F,Sp)

**116A. Electronics I.** (Formerly numbered Engineering 116A.) Lecture, four hours; recitation, one hour. Prerequisite: course 110A (or 100 for nonelectrical engineering majors). Equivalent circuit modeling of electron devices. Device-circuit-environment interactions. Design of single-stage amplifiers. Introduction to cascaded stages, coupling problems, and frequency responses.

Mr. Green (F,W,Sp)

**116B. Electronics II.** (Formerly numbered Engineering 116B.) Lecture, four hours; recitation, one hour. Prerequisite: course 116A. Electron device-circuit-environment interactions, with emphasis on multi-stage amplifiers. Tuned amplifier considerations. Nonlinear situations requiring graphical method of solution. Emphasis on design techniques, including economics, reliability, and realization of performance specifications.

Mr. K. Martin (F,W,Sp)

**116C. Digital Integrated Circuits.** (Formerly numbered Engineering 116C.) Lecture, four hours; recitation, one hour. Prerequisites: courses 116A, 116B, Computer Science 151A. Modern logic families (TTL, I<sup>2</sup>L, ECL, NMOS, CMOS), IC layout, MSI digital circuits (flipflops, registers, counters, PLAs, etc.), digital machine realization techniques, VLSI memories, A/Ds, VLSI systems (time permitting). Laboratory experiments in switching circuits.

Mr. K. Martin (F,W,Sp)

**116D. Communication Circuits.** (Formerly numbered Engineering 116D.) Lecture, four hours; recitation, one hour. Prerequisites: course 116B, System Science 121C. Signals and spectra. Signal distortion in transmission filters, transmission bandwidth requirements. Random signals and noise. Linear modulation, exponential modulation circuits and characteristics. Commercial communication systems.

Mr. Willis (F,Sp)

**116E. Integrated Circuit Components and Design.** (Formerly numbered Engineering 116E.) Lecture, four hours; recitation, one hour. Prerequisites: courses 115D, 116B. 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.

Mr. K. Martin, Mr. K. Wang (W)

**116F. Introduction to Power Electronics.** (Formerly numbered Engineering 116F.) Lecture, four hours; recitation, one hour. Prerequisite: course 116A. Electrical and thermal characteristics of power semiconductor devices, including diodes, transistors, and thyristors, and their application to power conditioning, conversion, and control. Emphasis on device limitations and design considerations. Examples are drawn from power amplifiers (switched and linear), inverters, and DC and AC motor drives.

Mr. Schott (F)

**116L. Electronics I Laboratory (2 units).** (Formerly numbered Engineering 116L.) Prerequisite: course 100L. Recommended: course 116A. Experimental determination of device characteristics, resistive diode circuits, single-stage amplifiers, compound transistor stages, effect of feedback on single-stage amplifiers.

Mr. K. Martin (F,W,Sp)

**116M. Electronics II Laboratory (2 units).** (Formerly numbered Engineering 116M.) Prerequisite: course 116L. Recommended: course 116B. Experimental 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.

Mr. Willis (F,W,Sp)

**116N. Pulse and Digital Methods Laboratory (2 units).** (Formerly numbered Engineering 116N.) Laboratory, four hours. Corequisite: course 116C. Digital circuits laboratory where three different logic families are characterized (I<sup>2</sup>L, TTL, and CMOS). Synchronous machine techniques are used for building simple circuits, culminating in a 4-bit successive approximation A/D converter.

Mr. K. Martin (F,Sp)

**116U. Design Laboratory in Microcomputer Hardware and Interfacing.** (Formerly numbered Engineering 116U.) Lecture, two hours; laboratory, six hours. Prerequisites: Computer Science 151B, 152B. A second-level design laboratory in microcomputer hardware and interfacing. Address, data, and control busses. I/O devices including serial interfaces, parallel interfaces, and timers. Assembly language programming. Advanced concepts such as interrupts, DMA, inter-processor communication, and industrial control applications are dealt with in major design projects where practical digital systems are designed and realized.

Mr. K. Martin (Sp)

**117A. Electromagnetic Waves I.** (Formerly numbered Engineering 117A.) Lecture, four hours; recitation, one hour. Prerequisite: course 100B. Review of transmission line theory; guided waves in enclosed waveguide and on surfaces; Smith chart; excitation of guided waves; phase and group velocity; cavity resonators; concept of Q; perturbation theory; waves in complex media (ferrites, crystals, semiconductors, plasmas). Mr. Schott (F,Sp)

**117B. Antenna Design I.** (Formerly numbered Engineering 117B.) Lecture, four hours; recitation, one hour. Prerequisite: course 117A. Retarded potentials. Actual and equivalent sources. Far-field patterns of dipoles, loops, and helices. Reciprocity, directivity, beamwidth, and sidelobe level of antenna patterns. Design of linear arrays. Schelkunoff unit circle. Design of feeding networks. Array design including mutual coupling. Mr. Elliott (Sp)

**117D. Electromagnetic Waves IV.** (Formerly numbered Engineering 117D.) Lecture, four hours; recitation, one hour. Prerequisite: course 117A. Special relativity; relativistic kinematics; field transformations; particle trajectories in electromagnetic fields; radiation from accelerated charges; waves in active media; microwave sources. Mr. Luhmann (W, even years)

**117E. Modern Optics.** (Formerly numbered Engineering 117E.) Lecture, four hours; recitation, one hour. Prerequisite: course 117A. Two-dimensional transforms. Diffraction methods. Geometrical optics and applications. Gaussian beams. Coherent and incoherent imaging systems. Optical processing methods. Holography and applications. Mr. Alexopoulos (Sp)

**117L. Electromagnetics Laboratory (2 units).** (Formerly numbered Engineering 117L.) Prerequisite: course 117A. Course 117B may be taken concurrently. Experimental investigation of microwave and millimeter wave sources; coaxial, waveguide strip line transmission systems; detectors and power measuring devices; cavity resonator studies; antenna impedance and radiation characteristics. Mr. Luhmann (W)

**117M. Active Microwave Circuit Design Laboratory (2 units).** (Formerly numbered Engineering 117M.) Laboratory, four hours. Prerequisite: course 117L. The application of contemporary analytic design techniques to the development of microwave amplifiers and oscillators incorporating state-of-the-art commercially available microwave transistors (silicon bipolar and GaAs MESFET). Mr. Luhmann (Sp)

**117X. Antenna Design II.** (Formerly numbered Engineering 117X.) Lecture, four hours; recitation, one hour. Prerequisite: course 117B. Radiation patterns of horns, slots, and patch 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. Mr. Elliott (F)

**117Y. Introductory Microwave Circuits.** (Formerly numbered Engineering 117Y.) Lecture, four hours; recitation, one hour. Prerequisite: course 117A. Equivalent mode voltage/current representation of guided waves in arbitrary rectilinear structures. Design of matching obstacles, attenuators, phase shifters, directional couplers, hybrid junctions, isolators, circulators, and microwave filters. Mr. Elliott (W)

**M118. Plasma Physics.** (Formerly numbered Engineering M118.) (Same as Physics M122.) Prerequisite: course 100B 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. Illustrative laboratory experiments are discussed. Mr. Chen (F, even years; Sp)

**195A. Computer-Aided Circuit Design.** (Formerly numbered Engineering 195A.) Lecture, four hours; recitation, one hour. Prerequisite: course 110A, knowledge of computer use. Piecewise analysis of large networks. Device modeling. AC, DC, and transient analysis of linear and nonlinear networks. Sensitivity and tolerance analysis. Computer-aided circuit optimization. Mr. Temes (Sp)

**199. Special Studies (2 to 8 units).** Prerequisites: senior standing and consent of instructor. Individual investigation of a selected topic to be arranged with a faculty member. Enrollment request forms are available in department office. Occasional field trips may be arranged. May be repeated for credit. (F,W,Sp)

## Graduate Courses

**201. Electrical Engineering Seminar (2 units).** Prerequisite: graduate standing in engineering. Lectures on current research topics in electrical engineering. S/U grading. Mr. Green (F,W,Sp)

**210A. Advanced Circuit Theory I.** Prerequisites: course 110B, knowledge of linear algebra and complex function theory. State equations for linear circuits. Characterization of n-ports and multiterminal elements. Introduction to and applications of the scattering matrix and related topics. Mr. Orchard (F)

**210B. Advanced Circuit Theory II.** Prerequisite: course 210A. Analytical techniques for active circuits: return difference, Blackman's formula for an active impedance. Characterization of nonlinear elements. State equations for nonlinear circuits. Stability of nonlinear circuits: Liapunov's direct method. Theory of nonlinear transistor circuits. Mr. Willson (W)

**210C. Advanced Network Synthesis.** Prerequisite: course 110C. Theory and practical development of lossless ladder networks. Loss-phase relations in minimum-phase networks. The Hilbert transform. All-pass functions and networks. Design of linear-phase polynomials. Mr. Orchard (W)

**210D. Active, Passive, and Digital Filters.** Prerequisite: course 210C or consent of instructor. Approximation theory. Realization of passive filters. Electromechanical filters. Active filters with lumped and/or distributed elements. Switched and digital filters. Mr. Orchard (Sp)

**210E. Digital Signal Processing.** Prerequisite: course 110B. Relationship between continuous-time and discrete-time signals. The z-transform. The discrete Fourier transform. The fast Fourier transform. State equations for discrete-time systems. Network structures for digital filtering. Introduction to digital filter design techniques. Mr. Temes, Mr. Willson (F)

**210F. Theory and Design of Digital Filters.** Prerequisite: course 210E. 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. Distributed arithmetic structures. Mr. Willson (W)

**213A. Quantum Electronics I.** Prerequisite: course 115A or consent of instructor. Review of quantum mechanics, approximation methods, interaction of radiation and matter. Mr. Casperson, Mr. Stafsudd (F)

**213B. Quantum Electronics II.** Prerequisite: course 213A or consent of instructor. Optical beams and resonators, interaction of light with atoms (including amplification and saturation), properties of lasers (including power output and mode effects). Mr. Casperson, Mr. Stafsudd (W)

**213C. Quantum Electronics III.** Prerequisite: course 213B or consent of instructor. Properties of laser oscillators, including transient phenomena, quantum mechanical effects, and behavior of high gain laser media. Mr. Casperson, Mr. Stafsudd (Sp)

**213D. Quantum Electronics IV.** Prerequisite: course 213B or consent of instructor. Quantum electronic systems, modulation, detection, acousto-optics, magneto-optics, nonlinear optics. Raman scattering, Brillouin scattering. Mr. Casperson (Sp)

**213S. Quantum Electronics Seminar (2 units).** Prerequisite: course 213A or consent of instructor. A series of lectures and student presentations on topics of current research interest in quantum electronics, modern optics, and laser physics. May be repeated for credit. S/U grading. Mr. Casperson, Mr. Stafsudd (W,Sp)

**214A. Plasma Waves and Instabilities.** Prerequisites: courses 100B and M118. Wave phenomena in plasmas described by the macroscopic fluid equations. Emphasis on homogeneous plasmas in uniform magnetic fields. Microwave propagation, plasma oscillations, ion acoustic waves, cyclotron waves, hydromagnetic waves, whistlers and helicon waves, and their classification. Illustrative experiments. Mr. Chen, Mr. Luhmann (W)

**214B. Advanced Plasma Waves and Instabilities.** Prerequisites: courses M118, and 214A 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. Mr. Chen, Mr. Luhmann (Sp)

**M214C. Principles of Magnetic Confinement Fusion.** (Same as Mechanical, Aerospace, and Nuclear Engineering M237A.) Prerequisites: courses M118, and 214A and 214B 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. Alternative concepts. Mr. Chen (F, odd years)

**M214D. Fusion Reactor Analysis.** (Same as Mechanical, Aerospace, and Nuclear Engineering M237B.) Prerequisite: course M118 or consent of instructor. Fusion reactions, fuel cycles, reactor plasma performance requirements. Methods for burning plasma analysis in, for example, tokamaks, tandem mirrors, and laser fusion plasmas. Point plasma kinetics, space-time multifluid hydrodynamics, and kinetic theory models. Driven reactor plasmas. Atomic radiation processes and plasma-wall interactions. Mr. Chen (W)

**M214E. Fusion Reactor Technology and Design.** (Same as Mechanical, Aerospace, and Nuclear Engineering M237C.) Prerequisite: Mechanical, Aerospace, and Nuclear Engineering 135A or consent of instructor. Fusion reactors, both magnetic and inertial. Operating conditions, power balance, system Q. Drivers for inertial confinement, magnet systems; blanket and shield design and analysis, induced radioactivity, tritium breeding and processing; radiation damage effects, design of reactors for electricity production or as hybrid systems. Mr. Chen (Sp)

**215A. Solid-State Electronics I.** Prerequisites: courses 115C and 213A, or consent of instructor. Energy band theory, electronic band structure of various elementary, compound, and alloy semiconductors, defects in semiconductors. Recombination mechanisms, transport properties. Mr. Pan (F)

**215B. Solid-State Electronics II.** Prerequisite: course 215A. Techniques to solve Boltzmann transport equation, various scattering mechanisms in semiconductors, high field transport properties in semiconductors, Monte Carlo method in transport. Optical properties. Mr. Pan (W, even years)

**215C. Microwave Semiconductor Devices.** Prerequisite: course 115D. Physical principles and design considerations of microwave solid-state devices: Schottky barrier mixer diodes, IMPATT diodes, transferred electron devices, tunnel diodes, microwave transistors. Mr. Fetterman, Mr. Pan (W)

**215D. Physics of Semiconductor Devices I.** Pre-requisite: course 115D. Physical principles and design considerations of junction devices.

Mr. Allen, Mr. K. Wang (F)

**215E. Physics of Semiconductor Devices II.** Pre-requisite: course 115D. Principles and design considerations of field effect devices and charge-coupled devices.

Mr. Viswanathan (Sp)

**216A. Analog Integrated Circuits.** (Not the same as course 216A prior to Fall Quarter 1981.) High-speed linear amplifiers: circuit design for optimum high-frequency response. Operational amplifiers, improved input impedance and slew rate, pole-zero compensation, circuit design techniques for optimum SNR. Voltage multipliers, D/A's and A/D's converters.

Mr. K. Martin, Mr. Willis (F)

**216B. Advanced Digital Integrated Circuits.** (Not the same as course 216B prior to Winter Quarter 1981.) Prerequisite: course 116C. Modern logic families (description, analysis, and comparison), MSI digital circuits (flipflops, registers, counters, PLAs, etc.), VLSI memories (ROMs, RAMs, CCDs, bubble memories, EPROMs, EEPROMs) and VLSI systems (microcomputers, PIAs, ACIAs, etc.).

Mr. K. Martin (W)

**216C. Advanced Integrated Circuit Design.** Prerequisites: courses 116E, 216A, 216B. Integrated circuit and system considerations: optimization and high-frequency effects, yield, reliability. Competing integrated circuit technologies: trade-off in materials and circuit design, special functions, hardware/software trade-off. Integrated circuit design project.

Mr. K. Martin (F)

**216D. Microwave Amplifiers.** (Formerly numbered 216A.) Prerequisites: courses 110B, 116B. Not open to students with credit for course 216A prior to Winter Quarter 1981. Microwave transistors, characteristics, and equivalent circuits at microwave frequencies. Two-port networks, activity and stability. Matching network synthesis with lumped and distributed components. Commensurate matching, networks. Linear amplifier design. Narrow band, broad band: input-output interactions. Optimum design approach, graphical approximations, syntheses, and optimization.

Mr. Willis (W, odd years)

**216E. Communication Feedback Circuits.** (Not the same as course 216E prior to Fall Quarter 1982.) Prerequisites: courses 110B, and 116D or System Science 120B. Analysis and applications of automatic gain control (AGC) and phase-locked loop (PLL) circuits. Emphasis on the use and design of AGCs and PLLs in communication circuits. Subjects include coherent and noncoherent AGCs, applications of PLLs, frequency synthesis, analysis of linear behavior with noise, and nonlinear acquisition.

Mr. Green (F)

**217A-217B. Advanced Engineering Electrodynamics.** Prerequisites: courses 117A and 117B, or equivalent. 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.

Mr. Alexopoulos, Mr. C. Yeh (F, 217A; W, 217B)

**217C. Microwave and Millimeter Wave Circuits.** Prerequisite: course 117Y 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.

Mr. Alexopoulos (Sp)

**217E. Antenna Theory and Design.** Prerequisite: course 117B. 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.

Mr. Elliott (W, even years)

**219A. Seminars on Advanced Topics in Electromagnetics.** Prerequisites: courses 117A and 117B, or equivalent. Current topics in electromagnetics, such as wave interaction with ferrites, moving media, data processing antennas, waves in statistically varying media, numerical methods applied to electromagnetic problems, holograms, and partially coherent waves. May be repeated for credit.

**219B. Seminars on Advanced Topics in Solid-State Electronics.** Prerequisites: courses 215A, 215B. Current research areas, such as radiation effects in semiconductor devices, diffusion in semiconductors, optical and microwave semiconductor devices, nonlinear optics, and electron emission.

**219D. Special Topics in Electric Circuit Theory.** Prerequisite: course 210B or 210C or 210D. Advanced treatment of topics chosen from research areas in electric circuit theory.

**219E. Special Topics in Quantum Electronics.** Prerequisite: course 213A or consent of instructor. Advanced treatment of topics chosen from research areas in quantum electronics, such as guided wave optics, unconventional laser systems, optical detection, and coherent optical imagery. May be repeated for credit.

Mr. Casperson, Mr. Stafsudd

**219X. 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.

(F,W,Sp)

**M258A. LSI in Computer System Design.** (Formerly numbered M258A-M258B-M258C.) (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. Students learn fundamental design techniques that can be used to implement complex integrated systems on a chip.

Mr. Viswanathan (F,W)

**M258B-M258C. LSI in Computer System Design.** (Formerly numbered M258A-M258B-M258C.) (Same as Computer Science M258B-M258C.) 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.

Mr. Viswanathan (W, M258B; Sp, M258C)

**298. Seminar in 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. A teaching apprenticeship under the 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.

Mr. Viswanathan (F,W,Sp)

**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 the 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.

## Environmental Science and Engineering (Interdepartmental)

This interdisciplinary graduate program, which leads to the Doctor of Environmental Science and Engineering (D.Env.) degree, provides scientific training in the enlightened management of the environment through a broad range of environmental disciplines. For details on this program, see Chapter 17 on the School of Public Health.

## Materials Science and Engineering

6531 Boelter Hall, 825-5534

### Professors

Alan J. Ardell, Ph.D., *Chair*  
Rintan F. Bunshah, D.Sc.  
David L. Douglass, Ph.D.  
William J. Knapp, Sc.D.  
John H. Lyman, Ph.D.  
John D. Mackenzie, Ph.D.  
Kanji Ono, Ph.D.  
Aly H. Shabaik, Ph.D.  
George H. Sines, Ph.D.  
Christian N. J. Wagner, Dr.rer.nat., *Assistant Dean*  
Alfred S. Yue, Ph.D.  
Daniel Rosenthal, Ph.D., *Emeritus*

### Associate Professors

Bruce S. Dunn, Ph.D.  
William Klement, Jr., Ph.D.

### Adjunct Professors

Samuel B. Batdorf, Ph.D.  
Ryoichi Kikuchi, Ph.D.  
Frederick F. Lange, Ph.D.  
Morris A. Steinberg, D.Sc.

### Adjunct Associate Professor

Keh-Jim Dunn, 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; (3) nondestructive testing, which measures the degree of reliability of a processed part.

The undergraduate program leads to the Bachelor of Science degree in 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 (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: science of materials, physical metallurgy and metal processing, mechanical metallurgy and deformation processing, and ceramics and ceramic processing.

## Bachelor of Science in Engineering

### Materials Science and Engineering Major Field

Materials science and engineering 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 plastics, 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.

Course requirements for the materials science and engineering major field are as follows:

(1) Eight core courses: Chemical Engineering M105A, M105D (or Mechanical, Aerospace, and Nuclear Engineering M105A, M105D), Civil Engineering 108, Electrical Engineering 100, Engineering 106B, Materials Science and Engineering 14, Mechanical, Aerospace, and Nuclear Engineering 102, and one course from Electrical Engineering 100B, Mechanical, Aerospace, and Nuclear Engineering 103, System Science 121C, 124A, 127B.

(2) Materials Science and Engineering 140E, 141, 142A, 144A, 145A, 146A, 147A; 142L and 146L, plus four additional laboratory units from 143L, 144L, 145B (one unit of lab credit), 147L; one mathematics course from Mechanical, Aerospace, and Nuclear Engineering 191A, M192A (or Chemical Engineering M192A), 192B, 192C, 193A, 193B, or suitable courses in the Mathematics Department; Civil Engineering 106A (satisfies the engineering economics requirement).

(3) Two elective courses from Civil Engineering 165A, Electrical Engineering 115A, 115B, 115C, 115D, Materials Science and Engineering 140D, 143A, 145B, 146B, 146F, 147B, 147E, 148A, Mechanical, Aerospace, and Nuclear Engineering 136C, 158A (the design content of the elective courses, the free electives, and the elective laboratory must total six units).

(4) English 3; Chemistry 11A, 11B/11BL; Computer Science 10C or 10F; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A, 8B, 8C, 8D; one life science elective course.

(5) A minimum of seven courses from the humanities, social sciences, and/or fine arts approved list (at least three must be upper division; at least three — with two upper division — must be in the same academic department or otherwise reflect coherence with respect to subject matter; and one must satisfy the engineering and science in society requirement, which also may be satisfied within the free electives).

(6) Three free elective courses selected from the list of elective courses (see item 3).

## Graduate Study

For information on graduate admission to the materials science and engineering program and requirements for the M.S., Engineer, and Ph.D. degrees and certificate of specialization, see "Graduate Study" at the beginning of this chapter.

## Lower Division Courses

**14. Science of Engineering Materials.** (Formerly numbered Engineering 14.) 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.

Mr. Douglass (F,W,Sp)

**15. Introduction to Manufacturing Engineering.** (Formerly numbered Engineering 15.) Manufacturing processes, materials and design in manufacturing; productivity, competitive aspects of manufacturing, manufacturing planning, production-scheduling, flexible manufacturing systems, economic and social aspects of manufacturing.

Mr. Shabaik

## Upper Division Courses

**M107A. Principles of Biotechnology.** (Formerly numbered Engineering M107A.) (Same as Psychology M153.) Prerequisite: third-quarter sophomore or higher standing. The principles of biological science are developed in an engineering design context. Emphasis on how physiological, psychological, and sociological factors affect the integration of man into environmental, informational, and managerial systems through engineering design.

Mr. Lyman (F,W,Sp)

**140D. Solid-State Electronic Materials.** (Formerly numbered Engineering 140D.) Prerequisite: course 14. Principles of nucleation and crystal growth from the melt and vapor. Solute redistribution in the melt; preparation of semiconductor single crystals and thin films. Phase diagrams. Preparation of p-n junctions by the liquid-phase-epitaxy and diffusion techniques. Electrical properties of solar cells. Field trips.

Mr. Yue (W)

**140E. Materials Selection and Engineering Design.** (Formerly numbered Engineering 140E.) Prerequisites: courses 14, 144A, 146A, 147A. 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.

Mr. Yue (W)

**141. Phase Relations in Solids.** (Formerly numbered Engineering 141.) Prerequisites: course 14, and 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.

Mr. Knapp (F)

**142A. Diffusion and Diffusion-Controlled Reactions.** (Formerly numbered Engineering 142A.) Prerequisite: course 141. 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.

Mr. Douglass (F)

**142L. Diffusion and Diffusion-Controlled Reactions Laboratory (2 units).** (Formerly numbered Engineering 142L.) Corequisite: course 142A. 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.

Mr. Douglass (F)

**143A. Mechanical Behavior of Materials.** (Formerly numbered Engineering 143A.) 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.

Mr. Ono, Mr. Shabaik (F,W)

**143L. Mechanical Testing Laboratory (2 units).** (Formerly numbered Engineering 143L.) Prerequisites: course 14, Civil Engineering 108. Recommended: one or more of course 143A, Mechanical, Aerospace, and Nuclear Engineering 158A, M166 (or Civil Engineering M166). Experimental techniques for the measurements of mechanical properties of engineering materials. Elastic constants, tensile, compression and bend testing, fracture toughness, fatigue and creep testing.

Mr. Ono, Mr. Shabaik (W,Sp)



**144A. Polymer Science.** (Formerly numbered Engineering 144A.) 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, spring polymers, elastomers, adhesives. Fiber forming polymers, polymer processing technology, plastication. Mr. Ardell (W)

**144L. Laboratory Experiments in Polymer Synthesis and Characterization (2 units).** (Formerly numbered Engineering 144L.) Prerequisite: course 144A or consent of instructor. Synthesis of addition and condensation type polymers. Polymerization kinetics. Characterization of polymer molecular weights, glass transition temperature and melting temperature. Glassy polymers and elastomers. Correlation of polymer structure and molecular weight with properties. Effect of polymer additives (e.g., plasticizers). Mr. Ardell (Sp)

**145A. Introduction to Materials Characterization A (Crystal Structure and X-Ray Diffraction of Material).** (Formerly numbered Engineering 145A.) 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 orientation and crystal structure; phase diagram determination; X-ray stress measurements; X-ray spectroscopy; design of materials characterization procedures. Mr. Wagner (F)

**145B. Introduction to Materials Characterization B (Electron Microscopy).** (Formerly numbered Engineering 145B.) Lecture, three hours; laboratory, two hours. Prerequisites: courses 14, 145A. 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. Mr. Ardell (W)

**146A. Introduction to Ceramics and Glasses.** (Formerly numbered Engineering 146A.) Prerequisite: course 14 or equivalent. An 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. Mr. Mackenzie (W)

**146B. Processing of Ceramics and Glasses.** (Formerly numbered Engineering 146B.) Prerequisite: course 146A or equivalent. A study of the processes used in fabrication of ceramics and glasses, relationship to structure and properties. Processing operations, including materials preparation, forming, sintering, and melting. Design of processing to achieve desired characteristics of structure, properties, and cost. Mr. Knapp (Sp)

**146F. Electronic Ceramics.** (Formerly numbered Engineering 146F.) Prerequisites: course 14, Electrical Engineering 100, or equivalent. The 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. Mr. Dunn (F)

**146L. Laboratory in Ceramics (2 units).** (Formerly numbered Engineering 146L.) Laboratory, four hours. Prerequisite: course 146A or equivalent. Recommended corequisite: course 146B. 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. Mr. Knapp (Sp)

**147A. Introduction to Metallurgy.** (Formerly numbered Engineering 147A.) Prerequisites: course 14 and a course in thermodynamics. Introduction to metallic alloys used in engineering design. Metallurgical thermodynamics, phases in metal systems, phase diagrams, metal forming, steels and cast iron, nonferrous alloys, design of metallic alloys for specific applications. Mr. Bunshah, Mr. Wagner (F)

**147B. Manufacturing Processes.** (Formerly numbered Engineering 147B.) 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. Mr. Shabaik (W)

**147E. Modern Process Metallurgy.** (Formerly numbered Engineering 147E.) Prerequisites: course 147A, and/or Chemical Engineering M105A or Mechanical, Aerospace, and Nuclear Engineering M105A. Modern process metallurgy used in extraction and refining of metals and alloys. The role of vacuum processing in modernizing and enlarging the scope of extractive metallurgy. Design of extractive and refining processes. Properties of vacuum-processed materials. Mr. Bunshah (Sp)

**147L. Manufacturing Processes Laboratory.** (Formerly numbered Engineering 147L.) Laboratory, eight hours. Prerequisite: course 147B. Experimental investigation, analysis, and design of metal forming processes (forging, extrusion, drawing, and rolling). Force measurements and energy calculations in metal cutting. Experimental investigation of hot and isostatic pressing of powder. Mr. Shabaik (Sp)

**148A. Structure and Properties of Composite Materials.** (Formerly numbered Engineering 148A.) Prerequisites: course 14 and one course from 143A, Mechanical, Aerospace, and Nuclear Engineering 156A, 158A, or Civil Engineering 165A. 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. Mr. Ono (Sp)

**149C. Properties of Art Ceramic Materials.** (Formerly numbered Engineering 149C.) Lecture, three hours; laboratory, three hours. Composition and properties of art ceramics and glazes. Ceramic raw materials and their functions in bodies and glazes. Design of glazes and methods of expressing composition. Laboratory projects are included (not intended for engineering majors). Mr. Knapp

**149E. Ceramic Materials in History and Archaeology.** (Formerly numbered Engineering 149E.) Lecture, two hours; laboratory, four hours. Prerequisite: consent of instructor. A technical introduction to the origins and evolution of ceramics and related materials, with emphasis on fabrication processes and raw materials. Laboratory exercises are aimed at the development of skills necessary for analytical studies (for students in the humanities and sciences). Mr. Knapp

**180B. Machine and Systems Biotechnology.** (Formerly numbered Engineering 180B.) Prerequisite: course M107A or consent of instructor. Quantitative and qualitative methods for assessing man as a component in engineering design applications. Limits and optima of human psychophysiological capabilities applied to display-control design, decision making problems, and task definition; problems of man-machine interactions in large-scale systems. Mr. Lyman (W)

**199. Special Studies (2 to 8 units).** Prerequisites: senior standing and consent of instructor. Individual investigation of a selected topic to be arranged with a faculty member. Enrollment request forms are available in department office. Occasional field trips may be arranged. May be repeated for credit. (F,W,Sp)

## Graduate Courses

**240A. Principles of Materials Science A (Microstructural Thermodynamics).** Prerequisites: course 141, and Chemical Engineering M105A or Mechanical, Aerospace, and Nuclear Engineering M105A, or equivalent. Thermodynamical equilibrium criteria for multicomponent systems of materials. Phase transformations and chemical reactions. Properties of solutions; the quasichemical approach. Free energy of binary systems and the construction of phase diagrams. Constitution of melts. Thermodynamics of interfaces and defects. Mr. Knapp (F)

**240B. Principles of Materials Science B (Structure of Materials).** Prerequisite: course 145A or equivalent. Atomic, electronic, and crystalline structure of materials; particles and waves, free electron model, binding in solids; crystal structure, real and reciprocal lattices; amorphous solids, kinematical theory of scattering, electrons in a periodic potential, pseudopotentials, conduction of electrons in solids. Mr. Dunn, Mr. Wagner (Sp)

**241. Oxidation of Metals.** Prerequisite: course 141 or equivalent or consent of instructor. The 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. Mr. Douglass (W)

**242A. Plasticity Theory Applied to Metalworking I.** Prerequisite: Mechanical, Aerospace, and Nuclear Engineering 158A. Fundamental concepts describing the mechanics of plastic deformation of homogeneous solids. Yield criteria. Methods of solution, including slip line field, of problems involving plastic deformation, with examples involving plane strain and axisymmetric deformation. Extrusion problem. Application of methods of solution. Mr. Shabaik (F)

**243A. Fracture of Structure Materials.** Prerequisite: Mechanical, Aerospace, and Nuclear Engineering 158A or equivalent. The 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. Mr. Ono (F)

**243B. Design for Fatigue Reliability.** Prerequisites: one or more courses from 143A, Mechanical, Aerospace, and Nuclear Engineering 156A, and 158A, 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. Mr. Sines (Sp, odd years)

**243C. Dislocations and Strengthening Mechanisms in Solids.** Prerequisite: course 143A or Mechanical, Aerospace, and Nuclear Engineering 158A. Elastic and plastic behavior of crystals, the geometry, mechanics, and interaction of dislocations, mechanisms of yielding, work hardening, and other strengthening. Mr. Ono (Sp, odd years)

**244. Electron Microscopy.** Prerequisite: course 145B or equivalent. Essential features of the electron microscope, geometry of electron diffraction, kinematical and dynamical theories of electron diffraction, including anomalous absorption, applications of theory to defects in crystals. Moire fringes, direct lattice resolutions, Lorentz microscopy, laboratory applications of contrast theory. Mr. Ardell

**245C. Diffraction Methods in Science of Materials.** Prerequisite: course 145A or equivalent. Theory of the 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. Mr. Wagner (Sp, odd years)

**246A. Mechanical Properties of Nonmetallic Crystalline Solids.** Prerequisite: course 146A. Material and environmental factors affecting the 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.

Mr. Mackenzie, Mr. Sines

**246B. Structure and Properties of Glass.** Prerequisite: course 146A. 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.

Mr. Mackenzie

**246D. Electronic and Optical Properties of Ceramics.** Prerequisite: course 146A. Principles governing electronic properties of ceramic single crystals and glasses and effects of processing and microstructure of these properties. Electronic conduction, ferroelectricity, and photochromism. Magnetic ceramics. Infrared, visible, and ultraviolet transmission. Unique application of ceramics.

Mr. Dunn, Mr. Mackenzie (Sp)

**247A. Solid-State Reactions.** Prerequisite: course 142A. Phenomenology and atomistic mechanisms of solid-state diffusion. Nucleation theory. Theory of diffusional growth processes, kinetics of diffusional transformations in solids. Precipitation in solids. Spinodal decomposition.

Mr. Ardell (W)

**247C. Advanced Solidification.** Prerequisites: courses 141, 147A, or equivalent. Liquid state concept of constitutional supercooling; nucleation from the liquid phase; solute redistribution during liquid-solid transformation; fluid motion; interface morphology; eutectic growth; determination of phase diagrams. Students report on current topics in solidification.

Mr. Yue (W, odd years)

**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.

Mr. Bunshah (F)

**280A. Advanced Biotechnology.** (Formerly numbered Engineering Systems 280A.) Prerequisite: course 180B or Mechanical, Aerospace, and Nuclear Engineering 180A or consent of instructor. Review and analysis of contemporary bioscience research which bears on problems of engineering component and system design. Emphasis on methodological and scientific factors underlying man-machine-environment interactions.

Mr. Lyman, Mr. O'Brien (W)

**280B. Advanced Biotechnology.** (Formerly numbered Engineering Systems 280B.) Prerequisite: course 180B or Mechanical, Aerospace, and Nuclear Engineering 180A or consent of instructor. Specialized coverage of "human factors" and "human engineering," with orientation toward obtaining design optimization of the functions of humans in relation to engineering parameters of environment, communication, and control.

Mr. Lyman (Sp)

**298. Seminar in 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. A teaching apprenticeship under the 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.

Mr. Ardell (F,W,Sp)

**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 the 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/ Computer Science (Interdepartmental)

For details on this undergraduate program, see Chapter 5 on the College of Letters and Science.

## Mathematics/ System Science (Interdepartmental)

For details on this undergraduate program, see Chapter 5 on the College of Letters and Science.

# Mechanical, Aerospace, and Nuclear Engineering

5732 Boelter Hall, 825-1161

### Professors

Mohamed A. Abdou, Ph.D.  
George E. Apostolakis, Ph.D.  
Ivan Catton, Ph.D.  
Andrew F. Charwat, Ph.D.  
Robert W. Conn, Ph.D.  
Vijay K. Dhir, Ph.D.  
Kurt Forster, Ph.D.  
Peretz Friedmann, Sc.D.  
William E. Kastenbergh, Ph.D., Assistant Dean  
Robert E. Kelly, Sc.D.  
Cornelius T. Leondes, Ph.D.  
Ajit K. Mal, Ph.D.  
William C. Meecham, Ph.D.  
Michel A. Melkanoff, Ph.D.  
Anthony F. Mills, Ph.D.  
D. Lewis Mingori, Ph.D.  
Philip F. O'Brien, M.S.  
David Okrent, Ph.D., Chair  
Gerald C. Pomraning, Ph.D.  
George H. Sines, Ph.D.  
Richard Stern, Ph.D.  
Russell A. Westmann, Ph.D.  
Joseph S. Beggs, D.Eng., *Emeritus*  
Harry Buchberg, M.S., *Emeritus*  
Walter C. Hurty, M.S., *Emeritus*  
Antony J. A. Morgan, Ph.D., *Emeritus*  
Russell R. O'Neill, Ph.D., *Emeritus Dean*  
Edward H. Taylor, M.S., *Emeritus*  
William T. Thomson, Ph.D., *Emeritus*

### Associate Professors

Nasr M. Ghoniem, Ph.D.  
James S. Gibson, Ph.D.

### Assistant Professors

Ann R. Karagozian, Ph.D.  
Adrienne G. Lavine, Ph.D.  
Peter A. Monkewitz, Ph.D.  
Daniel C. H. Yang, Ph.D.

### Adjunct Professors

Leslie Cave, B.Sc.  
Robert C. Erdmann, Ph.D.  
B. John Garrick, Ph.D.  
Leona M. Libby, Ph.D.  
Milton S. Plesset, Ph.D.  
Chauncey Starr, Ph.D.  
Robert J. Taylor, Ph.D.  
Edward R. Wood, D.Eng.

### Adjunct Associate Professor

Kenneth A. Solomon, Ph.D.

### Adjunct Assistant Professor

James M. McDonough, Ph.D.

### Adjunct and Visiting Lecturers

Charles Ashbaugh, M.S., *Adjunct*  
Alexander Samson, Ph.D., *Visiting Senior*

## 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 mechanical engineering and aerospace engineering are offered on the undergraduate and graduate levels, while nuclear engineering is primarily a graduate discipline. The recent Conference Board of Associated Research Councils' study ranked UCLA's mechanical engineering program ninth in the nation for both teaching and research.

Because of the scope of the department, faculty research and teaching cover an extremely 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, helicopter dynamics and aeromechanics, dynamics and control of large-space structures. Studies in structural mechanics range from fracture mechanics and wave propagation to structural dynamics and aeroelasticity. In the area of fluid mechanics and aerodynamics, investigations are underway on combustion and thermal convection, aeroacoustics, unsteady aerodynamics of wings, and transonic flows. Other key areas of research include fusion reactor design, experimental tokamak confinement physics, and surface physics; transport theory; light water reactor safety; reliability and risk assessment methodology and application; societal risk management; and nuclear materials. The department also has a growing activity in computer-aided design and manufacturing.

At the undergraduate level, the department offers programs leading to the Bachelor of Science degree in Engineering, with specializations in aerospace engineering and mechanical engineering; the latter includes opportunity to emphasize mechanical design, dynamics, and control; thermal science and power systems; or manufacturing processes.

At the graduate level, the department offers programs leading to M.S. and Ph.D. degrees in three separate areas: mechanical engineering, aerospace engineering, and nuclear engineering.

## Bachelor of Science in Engineering

### Aerospace Engineering Major Field

Aerospace engineering is concerned with the design and construction of various types of fixed wing and rotary wing (helicopters) aircraft used for air transportation and defense purposes. It is also concerned with the design and construction of spacecraft and 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.

Course requirements are as follows:

(1) Eight core courses: Civil Engineering 108, Electrical Engineering 100, Materials Science and Engineering 14, Mechanical, Aerospace, and Nuclear Engineering 102, 103, M105A, M105D, System Science 121C.

(2) Mechanical, Aerospace, and Nuclear Engineering 150A, 150B, 150P, 154A, 154B, 154S, M166, 171A, and 161A or M169A; 157, 157A (satisfy the laboratory requirement); Civil Engineering 106A (satisfies the engineering economics requirement); Mechanical, Aerospace, and Nuclear Engineering 191A or M192A or a suitable course in the Mathematics Department selected in consultation with your adviser (satisfies the mathematics requirement).

(3) Three elective courses selected in consultation with your adviser from Mechanical, Aerospace, and Nuclear Engineering 131A, 132A, 133A (propulsion, heat, and mass transfer); 153A, 153C (acoustics, fluid mechanics); 155, 161A, 164, M169A, 171C (dynamics and control); 156A, 158A (structural mechanics); 162A (mechanisms); 131AL, 162C, Civil Engineering 157B (two units of lab credit), 169L (laboratory).

(4) English 3; Chemistry 11A, 11B/11BL; Computer Science 10F; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A, 8B, 8C, 8D; one life science elective course.

(5) A minimum of seven courses from the humanities, social sciences, and/or fine arts approved list (at least three must be upper division; at least three — with two upper division — must be in the same academic department or otherwise reflect coherence with respect to subject matter; and one must satisfy the engineering and science in society requirement).

### Mechanical Engineering Major Field

The 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 design, dynamics, and control; thermal science and power systems; and manufacturing processes.

Course requirements are as follows:

(1) Eight core courses: Civil Engineering 108, Electrical Engineering 100, Materials Science and Engineering 14, Mechanical, Aerospace, and Nuclear Engineering 102, 103, M105A, M105D, System Science 121C.

(2) Materials Science and Engineering 147B, Mechanical, Aerospace, and Nuclear Engineering 131A, 133A, 150A, plus one course from 156A, 158A, M166, and two courses from 162A, M169A, 171A, Civil Engineering 106A; Mechanical, Aerospace, and Nuclear Engineering 162B and 162M (satisfy the design requirement); one mathematics course from Mechanical, Aerospace, and Nuclear Engineering 191A, M192A (recommended), 192B, 192C, 193A, 193B, or System Science 124A.

Eight laboratory units: Mechanical, Aerospace, and Nuclear Engineering 157, plus four additional units from one of the following subject areas:

*Manufacturing Processes:* Materials Science and Engineering 143L, 144L, 146L, 147L.

*Mechanical Design, Dynamics, and Control:* Civil Engineering 157B (two units of lab credit), 169L, Materials Science and Engineering 143L, Mechanical, Aerospace, and Nuclear Engineering 162C (two units of lab credit).

*Thermal Science and Power Systems:* Mechanical, Aerospace, and Nuclear Engineering 131AL.

(3) Three elective courses, approved by your adviser, to be selected from one of the subject areas listed below (at least one course in each subgrouping — a, b, c — within your selected subject area should be included):

*Manufacturing Processes:*

(a) Materials Science and Engineering 143A, Mechanical, Aerospace, and Nuclear Engineering 158A\*, 163A, 164.

(b) Civil Engineering 174A, Mechanical, Aerospace, and Nuclear Engineering 174B, 194A, 194B.

*Mechanical Design, Dynamics, and Control:*

(a) Mechanical, Aerospace, and Nuclear Engineering 155, 162A\*, 163, M169A\*, 171A\*.

(b) Materials Science and Engineering 143A, Mechanical, Aerospace, and Nuclear Engineering 164, 191A, 193A, 194A, 194B, System Science 120A, 120B, 124A, Mathematics 115A, 115B, 131A, 131B.

*Thermal Science and Power Systems:*

(a) Chemical Engineering 130A, Mechanical, Aerospace, and Nuclear Engineering 132A, 135A, 150B.

(b) Mechanical, Aerospace, and Nuclear Engineering 134B, 136B, 150P, 151.

\*Unless taken as part of the core.

(4) English 3; Chemistry 11A, 11B/11BL; Computer Science 10C or 10F; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A, 8B, 8C, 8D; one life science elective course.

(5) A minimum of seven courses from the humanities, social sciences, and/or fine arts approved list (at least three must be upper division; at least three — with two upper division — must be in the same academic department or otherwise reflect coherence with respect to subject matter; and one must satisfy the engineering and science in society requirement).

## Graduate Study

For information on graduate admission to the mechanical, aerospace, and nuclear engineering program and requirements for the M.S., Engineer, and Ph.D. degrees and certificate of specialization, see "Graduate Study" at the beginning of this chapter.

## Lower Division Course

**94. Introduction to Computer-Aided Design and Drafting.** (Formerly numbered Engineering 94.) 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.

Mr. Melkanoff (F,Sp)

## Upper Division Courses

**102. Mechanics of Particles and Rigid Bodies.** (Formerly numbered Engineering 102.) 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.

Mr. Mingori (F,W,Sp)

**103. Elementary Fluid Mechanics.** (Formerly numbered Engineering 103.) Lecture, three hours; recitation, two hours. Prerequisites: Mathematics 32B, 33A, Physics 8B. An introductory course dealing with the application of the principles of mechanics to the flow of compressible and incompressible fluids.

Mr. Meecham (F,W,Sp)

**M105A. Introduction to Engineering Thermodynamics.** (Formerly numbered Engineering 105A.) (Same as Chemical Engineering M105A.) Lecture, four hours; recitation, one hour. Prerequisites: Physics 8B, Mathematics 32B. Phenomenological thermodynamics. Concepts of equilibrium, temperature, and reversibility. First law and concept of energy; second law and concept of entropy. Equations of state and thermodynamic properties. Engineering applications of these principles in the analysis and design of closed and open systems.

Mr. Dhir (F,W,Sp)

**M105D. Transport Phenomena.** (Formerly numbered Engineering 105D.) (Same as Chemical Engineering M105D.) Lecture, four hours; recitation, one hour. Prerequisites: Physics 8B, Mathematics 32B, 33A. Transport phenomena; heat conduction, mass species diffusion, convective heat and mass transfer, and radiation. Engineering applications in thermal and environmental control.

Mr. Catton (F,W,Sp)

**131A. Intermediate Heat Transfer.** (Formerly numbered Engineering 131A.) Prerequisite: course M105D. 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, dimensional analysis, working correlations. Surface radiation. Two-stream heat exchangers. Elements of thermal design.

Mr. Catton (F,W,Sp)

**131AL. Thermal Sciences Laboratory.** (Formerly numbered Engineering 131AL.) Laboratory, eight hours. Prerequisites: courses 131A, 157. Basic experimental investigations and analysis of the energy transformation and rate processes. Experiments include examples from thermodynamics and heat and mass transfer. Students are asked to take and analyze the data and discuss the physical phenomena.

Mr. Dhir (Sp)

**132A. Mass Transfer.** (Formerly numbered Engineering 132A.) Prerequisite: course M105D or 131A. The 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.

Mr. Dhir (W)

**133A. Engineering Thermodynamics.** (Formerly numbered Engineering 133A.) Prerequisites: courses 103, M105A, M105D. Applications of thermodynamic principles to engineering processes. Energy conversion systems. Rankine cycle and other power cycles, refrigeration, psychrometry, reactive and nonreactive fluid flow systems.

Mr. Dhir (F)

**134B. Solar Energy Use and Control.** (Formerly numbered Engineering 134B.) Prerequisite: course M105D or equivalent or consent of instructor. Nature and availability of solar radiation; review of selected heat transfer topics pertinent to solar energy collection and use; design analysis of nonfocusing solar energy collector-converters and methods of energy storage; selected applications.

Mr. Okrent (W)

**135A. Nuclear Reactor Theory I.** (Formerly numbered Engineering 135A.) Prerequisite: junior standing. Introduction to nuclear reactor theory, basic physics, neutron cross sections, nuclear fission, elementary analysis of homogeneous reactor cores. Multiregion reactors and one- and two-group diffusion theory.

Mr. Kastenber (F)

**135AL. Nuclear Analysis Laboratory (2 units).** (Formerly numbered Engineering 135AL.) Laboratory, four hours. Corequisite: course 135A. A laboratory course in nuclear engineering comprised of various experiments in reactor core physics and related fields. The experiments consist of measuring and calculating reactor core physics parameters and pertinent heat transfer/fluid flow parameters.

Mr. Catton

**135B. Nuclear Reactor Theory II.** (Formerly numbered Engineering 135B.) Prerequisite: course 135A. Introduction to slowing down, thermalization, multigroup theory, heterogeneous effects, reactor kinetics, and perturbation theory.

Mr. Apostolakis

**135BL. Nuclear Analysis Laboratory II (2 units).** (Formerly numbered Engineering 135BL.) Laboratory, four hours. Corequisite: course 135B. A laboratory course in nuclear engineering comprised of various experiments in reactor core physics and related fields. The experiments consist of measuring and calculating reactor core physics parameters and pertinent heat transfer/fluid flow parameters.

Mr. Catton

**135C. Introductory Nuclear Reactor Design.** (Formerly numbered Engineering 135C.) Prerequisites: courses 135A, 135B. Reactor physics, engineering, fuel element design for nuclear reactor cores, criticality, reactivity considerations, and effects; power distributions; differences among various power reactor systems. Introduction to the use of physics design computer codes.

Mr. Pomraning

**135D. Introduction to Fusion Engineering and Reactor Design.** (Formerly numbered Engineering 135D.) Corequisite: course 135A 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.

Mr. Conn (F)

**135E. Neutron Activation Analysis Laboratory.** (Formerly numbered Engineering 135E.) Prerequisites: upper division standing in engineering, Chemistry 11A, 11B, Mathematics 31A, 31B, Physics 6A and 6B, or 8A and 8B. Application of neutron activation as a tool for research in the physical sciences. Emphasis on the nuclear reactor as a neutron source. Topics include nuclear chemistry, radiation detectors and analyzers, with computer handling of the spectral data.

Mr. Catton

**135F. Experimental Reactor Operations, Control, and Safety (2 units).** (Formerly numbered Engineering 135F.) Laboratory, four hours. Prerequisite: course 135A. Operation of the UCLA R-1 Argonaut reactor, measurements of various core parameters and control system responses, and evaluation of various safety systems through experimentation. Experiments not included in courses 135B, 135C, Chemical Engineering 139A are conducted.

Mr. Catton

**136A. Introduction to Probabilistic Risk Analysis.** (Formerly numbered Engineering 136A.) Prerequisite: consent of instructor. Probabilistic models for the failure of components and systems. Redundant systems. Maintenance models. Fault and event tree analysis. Applications to nuclear reactor systems.

Mr. Apostolakis (W)

**136B. Nuclear Reactor Thermal Hydraulic Design.** (Formerly numbered Engineering 136B.) Prerequisites: courses M105A, M105D, 131A. Recommended: course 135A. Thermohydraulic design of various nuclear power reactor concepts; power generation and heat removal; power cycle, thermal and hydraulic component design; overall plant design; steady state and transient nuclear system operation.

Mr. Dhir (W)

**136C. Fundamentals of Nuclear Reactor Materials.** (Formerly numbered Engineering 136C.) Prerequisites: Materials Science and Engineering 14, Mathematics 33A, Physics 8D. Function and choice of materials in reactors. Point defects. Diffusion in solids. Fuel element thermal performance. Behavior of fission products. Fuel swelling radiation effects in metals; hardening, embrittlement, and fracture; nuclear fuel equation of state; fuel element design.

Mr. Ghoniem

**150A. Applied Fluid Mechanics I.** (Formerly numbered Engineering 150A.) Prerequisite: course 103 or consent of instructor. The course provides students with a working knowledge of incompressible fluid mechanics. Equations of motion are derived and applied to a variety of engineering fields. These include flow over bodies, turbulent flow in pipes, open channel flow, ocean waves, and porous media.

Mr. Charwat, Mr. Kelly (F,W)

**150B. Applied Fluid Mechanics II.** (Formerly numbered Engineering 150B.) Prerequisite: course 103 or equivalent or consent of instructor. Gas dynamics: isentropic flow in nozzles, normal and oblique shocks, Prandtl-Meyer expansion fan, effects of friction and heat transfer in channel flows, thin airfoils in supersonic flow. Viscous flow; exact solutions of Navier-Stokes equations, boundary layer theory, instability, turbulence, separation.

Mr. Charwat (Sp)

**150P. Jet Propulsion Systems.** (Formerly numbered Engineering 150P.) Prerequisites: courses 103, M105A. Thermodynamic properties of gases, design and analysis of aircraft jet engine components, cycle analysis, design and analysis of combustion systems, performance of rocket vehicles.

Ms. Karagozian (F)

**151. Performance of Vehicles.** (Formerly numbered Engineering 151.) Prerequisites: courses 103, M105A. Preliminary design analysis of the performance of a variety of vehicles, including automobiles, trains, aircraft, rocket-powered vehicles, ground effect machines, ships and sailboats; performance parameters include speed, range, payload, efficiency, dynamics and stability, noise, and air or water pollution. Mr. Charwat (F)

**153A. Engineering Acoustics.** (Formerly numbered Engineering 153A.) Prerequisite: upper division standing in engineering or consent of instructor. Fundamental course in acoustics, including the ear and hearing; basic acoustical instrumentation; propagation of sound; sources of sound; architectural reverberation; selected subjects. Mr. Meecham (F)

**153B. Acoustics Laboratory.** (Formerly numbered Engineering 153B.) Laboratory, eight hours. Prerequisite or corequisite: course 153A or consent of instructor. Experimental studies in the field of acoustics, including audiometry, noise and noise control, acoustical filters, impedance measurements, transducer characteristics, and interferometry. Occasional field trips may be necessary to obtain data. Mr. Meecham

**153C. Noise and Noise Control Design.** (Formerly numbered Engineering 153C.) Prerequisite: course 153A or consent of instructor. Practical concepts in design, construction, measurement, and analysis of noise suppression techniques. Includes equipment, transducers, environmental factors in sound propagation, enclosures, properties of materials, sound interaction in structures, mufflers, isolators, damping of panels, ducts, aerodynamic noise, noise criteria and standards. Mr. Meecham

**154A. Aerodynamic Design.** (Formerly numbered Engineering 154A.) Prerequisites: courses 103, 150A. The course presents the classical ideas of aircraft aerodynamics. Lift, drag, thrust, and power are discussed, then aircraft performance and stability. The quarter assignment is the preliminary design of an aircraft satisfying specifications set by the instructor. Mr. Friedmann (W)

**154B. Design of Aerospace Structures.** (Formerly numbered Engineering 154B.) Prerequisites: courses 154A, M166. 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. Mr. Friedmann (Sp)

**154S. Flight Mechanics, Stability, and Control of Aircraft.** (Formerly numbered Engineering 154S.) Prerequisites: courses 150A, 150B. The course deals with aircraft performance, flight mechanics, stability, and control, presenting some of the basic ingredients needed for the design of an aircraft. The effects of airplane flexibility on stability derivatives is also treated. Mr. Friedmann (F)

**155. Intermediate Dynamics.** (Formerly numbered Engineering 155.) Prerequisite: course 102 or equivalent. The axioms of Newtonian mechanics, generalized coordinates, Lagrange's equations, variational principles; central force motion; kinematics and dynamics of a rigid body. Euler's equations, motion of rotating bodies, oscillatory motion, normal coordinates, orthogonality relations, the vibrating string. Mr. Forster (Sp)

**156A. Advanced Strength of Materials.** (Formerly numbered Engineering 156A.) Prerequisite: Civil Engineering 108. Columns and beam columns. Torsion; Airy's stress functions, stress concentrations. Loads on balls, rollers. Rotating disks, thick hollow spheres, thick hollow circular cylinders, curved beams, coiled springs. Mr. Westmann (Sp)

**157. Basic Mechanical Engineering Laboratory.** (Formerly numbered Engineering 157.) Laboratory, eight hours. Prerequisites: courses 103, M105A, M105D, Civil Engineering 108. Methods of measurement of basic quantities and performance of basic experiments in the thermal sciences, fluid mechanics, and structures. Primary sensors, transducers (motion, force and stress, temperature), recording equipment, signal processing, and data analysis. Mr. Dhir, Mr. Monkewitz (F,W)

**157A. Fluid Mechanics Laboratory.** (Formerly numbered Engineering 157A.) Laboratory, eight hours. Prerequisites: courses 103, 157. Course provides a background in experimental techniques in fluid mechanics. Students take part in three experiments, each of which studies a practical problem while giving hands-on experience with various measurement techniques. Mr. Charwat (Sp)

**158A. Elasticity and Plasticity.** (Formerly numbered Engineering 158A.) Prerequisite: Mathematics 32B. Three-dimensional stress and strain. Criteria for prediction of mechanical failure. Differential equations in three dimensions; analytical, numerical, and experimental solutions of plane state and torsion problems. (Stress function, iteration, strain gages, photoelasticity.) Homogeneous plastic flow, plastic tensile instability. Mr. Westmann (W)

**161A. Introduction to Astronautics.** (Formerly numbered Engineering 161A.) Prerequisite: course 102. The space-environment of earth, near-earth orbits and trajectories, step rockets and staging, the two-body problem, orbital transfer and rendezvous, elementary perturbation theory, influence of earth's oblateness. Mr. Forster (F)

**162A. Introduction to Mechanism and Mechanical Systems.** (Formerly numbered Engineering 162A.) Prerequisite: course 102. The analysis and synthesis of mechanisms and mechanical systems are studied, including both kinematics and dynamics aspects. Mechanisms from a wide range of applications, including automatic machinery, transportation systems, and computer peripheral equipment, are introduced. Mr. Yang (F)

**162B. Fundamentals of Mechanical System Design.** (Formerly numbered Engineering 162B.) Lecture, three hours; laboratory, three hours. Prerequisite: course 102. Techniques of modern design and development of mechanical systems. Application and analysis of basic components and subsystems such as gear trains, bearings, hydraulic and pneumatic subsystems. The dynamics of high-speed machines. Students create a design of their choice. Mr. Yang (F,W)

**162C. Electromechanical Systems Laboratory.** (Formerly numbered Engineering 162C.) Lecture, one hour; laboratory, five hours. Prerequisite: course 162B or consent of instructor. Laboratory course for students interested in research, design, or development of complex mechanical and electromechanical systems. Students, with consent of instructor, select a system which they develop, build, and instrument. Behavior of this system is studied in detail. Mr. Yang

**162M. Senior Mechanical Engineering Design.** (Formerly numbered Engineering 162M.) Lecture, one hour; laboratory, five hours. Prerequisites: course 162B, Civil Engineering 106A, Materials Science and Engineering 147B. Must be taken during the last two quarters of the academic program. Students conceptualize, analyze, synthesize, and optimize group design projects. Constraints such as economics, safety, reliability, manufacturability, and social impact are considered. Presentation including a report with engineering specifications and drawings is made in competition among groups. Mr. Samson (F,W,Sp)

**163. Dynamics and Control of Physical Systems.** (Formerly numbered Engineering 163.) Prerequisites: courses 155 or M169A (may be taken concurrently) and 171A. Application of the principles of dynamics and classical control theory to a wide range of physical systems, including simplified models of machines and electromechanical devices, space and ground transportation vehicles, and biomechanical systems. Mathematical modeling and computer simulation are emphasized. Mr. Yang

**163A. Fundamentals of Robotics.** (Formerly numbered Engineering 163A.) Prerequisite: upper division standing. Mechanical modeling and control of robots. Interaction of robots with their environment. Study of robot components. Robot languages. Computer simulation of robot action. Intelligent robot in industrial applications. Social implications. Mr. Melkanoff (W)

**163L. Robotics Laboratory.** (Formerly numbered Engineering 163L.) Laboratory, six hours. Prerequisite: consent of instructor. The course provides hands-on experience in programming and operating industrial robots. It also leads to research projects in industrial applications in robotics systems, languages, sensory systems, and artificial intelligence. Mr. Melkanoff (W)

**164. Digital Control of Physical Systems.** (Formerly numbered Engineering 164.) (Not the same as course 164 prior to Fall Quarter 1982.) Prerequisite: course 171A or System Science 122A. Recommended: courses 163, 171C. 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. Mr. Mingori (W)

**M166. Elementary Structural Mechanics.** (Formerly numbered Engineering 166.) (Same as Civil Engineering M166.) Prerequisite: Civil Engineering 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. Mr. Westmann

**M169A. Introduction to Mechanical Vibrations.** (Formerly numbered Engineering 169A.) (Same as Civil Engineering M169A.) Prerequisites: course 102, Civil Engineering 108. Recommended: System Science 121C. Fundamentals of vibration theory and applications. Free, forced, and transient vibration of one and two degrees of freedom systems, including damping and nonlinear behavior. Normal modes, coupling, and normal coordinates. Elements of vibration and wave propagation in continuous systems. Mr. Friedmann

**171A. Introduction to Feedback and Control Systems: Dynamic Systems Control I.** (Formerly numbered Engineering 171A.) Prerequisite: consent of instructor. Recommended: System Science 121C. 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. Mr. Mingori (W)

**171C. Dynamic Systems Control II.** (Formerly numbered Engineering 171C.) Recommended prerequisite: course 171A or System Science 122A. State-space models of continuous 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. Mr. Leondes (Sp)

**174B. Reliability and Quality Assurance.** (Formerly numbered Engineering 174B.) Prerequisite: course 193A or consent of instructor. An introduction to the manufacturing-oriented and related fields of reliability and quality in terms of organizational relationships, major functional tasks, statistical and other techniques, and elements of engineering analysis.

(F,W,Sp)

**180A. Environmental Biotechnology.** (Formerly numbered Engineering 180A.) Prerequisite: Materials Science and Engineering M107A or consent of instructor. Physical, physiological, and psychological aspects of the 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.

Mr. O'Brien

**191A. Laplace Transforms and Applied Complex Variables.** (Formerly numbered Engineering 191A.) Prerequisites: course 102, Electrical Engineering 100. Introduction to the Laplace transformation: application to electrical and mechanical problems, convolution-type integral equations, difference equations, and simple boundary value problems in partial differential equations. Complex variable theory, contour integrals, residues; application to transform inversion and partial differential equations.

Mr. Forster (W,Sp)

**M192A. Mathematics of Engineering.** (Formerly numbered Engineering 192A.) (Same as Chemical Engineering M192A.) Prerequisites: Mathematics 33A, 33B. Application of mathematical methods to problems of interest in engineering. The main topic is systems of linear ordinary differential equations. Fourier series, transforms, and nonlinear effects are also discussed as related to the solutions of differential equations.

Mr. Forster, Mr. Kastenber (F,W,Sp)

**192B. Mathematics of Engineering.** (Formerly numbered Engineering 192B.) Prerequisite: course M192A or equivalent. Applications of mathematical methods to engineering problems are considered. Eigenvalue problems for continuous systems and the related special functions are studied.

Mr. Forster, Mr. Kastenber (Sp)

**192C. Numerical Methods for Engineering Applications.** (Formerly numbered Engineering 192C.) Recommended prerequisite: System Science 124A. Basic topics from numerical analysis having wide application in the solution of practical engineering problems. The algebraic eigenvalue problem. Initial and boundary value problems for ordinary and partial differential equations. Elementary finite difference techniques for partial differential equations applied to heat, wave, and Poisson equations.

Mr. Forster, Mr. Kastenber (F)

**193A. Engineering Probabilistics and Stochastics.** (Formerly numbered Engineering 193A.) Prerequisite: junior standing in engineering. Sets and set algebra; sample spaces; combinatorics; absolute and conditional probability; discrete and continuous random variables; probability distribution, increment, and density functions; Chebyshev's inequality; Laplace-Fourier transforms; law of large numbers; central limit theorems; discrete and continuous stochastic processes.

Mr. Meecham (F)

**193B. Engineering Statistics.** (Formerly numbered Engineering 193B.) Prerequisite: course 193A or equivalent or consent of instructor. Introductory concepts of statistical decision and estimation. Population parameters, samples, data, statistics. Classical tests of significance and hypotheses. OC-functions and sample sizes. Statistical estimation for one- and two-parameter populations. Bayesian inference, stopping rules. Decision theory, payoffs, losses. Applications.

Mr. Apostolakis

**194A. Fundamentals of Computer-Aided Design and Manufacturing.** (Formerly numbered Engineering 194A.) Prerequisite: junior standing in engineering or mathematics. Corequisite: course 194B. Basic course in computer-aided and manufacturing area. Covers foundation of computerized drafting, including primitives, operators, and major functions. Discusses descriptions and representations of solid objects; hardware, software, and available commercial systems. Discusses the data processing and numerical control aspects of computer-aided manufacturing.

Mr. Melkano (W)

**194B. Computer-Aided Design Laboratory (2 units).** (Formerly numbered Engineering 194B.) Laboratory, four hours. Prerequisite: junior standing in engineering or mathematics. Corequisite: course 194A. Students are taught how to utilize an on-line computer-aided system, to draw and to design various parts and systems.

Mr. Melkano (W)

**195L. Numerically Controlled Manufacturing Machinery Laboratory.** Laboratory, six hours. Prerequisite: consent of instructor. Programming and control of numerically controlled metal cutting machines. NC programming in various languages. Postprocessors utilization. Direct interface to CAD.

Mr. Melkano (Sp)

**199. Special Studies (2 to 8 units).** Prerequisites: senior standing and consent of instructor. Individual investigation of a selected topic to be arranged with a faculty member. Enrollment request forms are available in department office. Occasional field trips may be arranged. May be repeated for credit.

(F,W,Sp)

## 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.

Mr. Okrent (Sp)

**202. Manufacturing Engineering Seminar (2 units).** Prerequisite: graduate standing in engineering. Lectures on current research and development in manufacturing engineering. S/U grading.

Mr. Melkano (F,W,Sp)

**231A. Convective Heat Transfer Theory.** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 231A.) Prerequisite: course 131A. The 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.

Mr. Catton (W)

**231B. Radiation Heat Transfer.** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 231B.) 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.

Mr. Catton (Sp)

**231C. Boiling and Condensation.** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 231C.) Prerequisites: courses 131A and 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.

Mr. Dhir (W)

**231D. Application of Numerical Methods to Transport Phenomena.** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 231D.) 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.

Mr. Okrent (Sp)

**231E. Two-Phase Flow Heat Transfer.** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 231E.) 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.

Mr. Dhir

**231F. Advanced Heat Transfer.** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 231F.) Prerequisite: course 231A. Advanced topics in heat transfer from the current literature. Linear and nonlinear theories of thermal and hydrodynamic instability; variational methods in transport phenomena; phenomenological theories of turbulent heat and mass transport.

Mr. Catton (Sp)

**232B. Advanced Mass Transfer.** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 232B.) Prerequisites: courses 131A, 132A. The formulation of the general convective heat and mass transfer problem, including equilibrium and nonequilibrium chemistry. Similar and nonsimilar solutions for laminar flows; solution procedures for turbulent flows. Multicomponent diffusion. Application to the hypersonic boundary layer, ablation and transpiration, cooling combustion.

Mr. Catton (Sp)

**233A. Advanced Power Production and Propulsion.** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 233A.) 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.

Mr. Charwat (Sp)

**234A. Topics in Thermal Design.** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 234A.) 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 are made by the staff and occasionally by invited off-campus specialists.

Mr. Dhir

**235A. Neutron Transport Theory.** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 235A.) Prerequisite: course 135B. The analytical and computational methods used in one-speed neutron transport theory. Spatial and angular dependent problems in various approximations;  $P_N$ ,  $S_N$ , and diffusion theory; the use of variational and singular eigenfunction methods. Introduction to energy dependence and neutron thermalization.

Mr. Pomraning (W)

**235B. Energy and Time Dependent Reactor Analysis.** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 235B.) Prerequisite: course 235A or consent of instructor. The analytical and computational methods used in energy and time dependent reactor analysis. Multigroup and energy dependent transport theory;  $B_k$ , finite difference and variational methods applied to slowing down, and resonance phenomena. Time dependent analyses of the reactor as a lumped and distributed parameter system.

Mr. Kastenber (Sp)

**235C. Methods of Nuclear Reactor Analysis.** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 235C.) Prerequisite: course 235A or consent of instructor. The analysis of nuclear reactor systems by approximation techniques, analytical methods, and numerical methods. A synthesis of reactor physics and engineering, with applications to various systems.

Mr. Pomraning



**236A. Nuclear Fuel Element Behavior.** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 236A.) Prerequisite: course 136C. Void swelling of cladding materials, fuel swelling due to fission gases, pore migration and fuel restructuring, fission gas release, computer codes for swelling and gas release, densification, and hot pressing, modeling of the structural behavior of fuel elements and assemblies. Mr. Okrent

**236B. Radiation Damage in Reactor Materials.** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 236B.) Prerequisite: course 136C. Fundamentals of radiation damage; energy loss and Linhard's theory, atom displacement, the collision cascade; focusing and channeling effects, computer simulations and experiments on cascades, damage simulation techniques for material testing, bulk effects of radiation; void swelling and irradiation creep, surface effects; blistering and sputtering of surface atoms. Mr. Ghoniem (W)

**236C. Nuclear Reactor Safety.** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 236C.) Prerequisite: course 135B. 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. Mr. Okrent (W)

**236D. Probabilistic Risk Assessment.** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 236D.) (Not the same as Chemical, Nuclear, and Thermal Engineering 236D prior to Winter Quarter 1982.) Prerequisite: course 136A. Basic concepts of risk benefit; low probability — high consequence events; methods for the evaluation of risk; fault/event tree analysis; dependent failures; data evaluation; decision theory; applications to large technological systems (e.g., nuclear power reactors, chemical process systems, dams, etc.). Mr. Apostolakis (Sp)

**236E. Advanced Problems in Reactor Design.** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 236E.) Prerequisites: at least four courses from 235A, 235B, 235C, 236A, 236B, 236C, 236D. 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. Mr. Okrent (Sp)

**M237A. Principles of Magnetic Confinement Fusion.** (Formerly numbered M250.) (Same as Electrical Engineering M214C.) Prerequisites: Electrical Engineering M118, and 214A and 214B 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. Mr. Conn

**M237B. Fusion Reactor Analysis.** (Formerly numbered M251.) (Same as Electrical Engineering M214D.) Prerequisite: Electrical Engineering M118 or consent of instructor. Fusion reactions, fuel cycles, reactor plasma performance requirements. Methods for burning plasma analysis in, for example, tokamaks, tandem mirrors, and laser fusion plasmas. Point plasma kinetics, space-time multifluid hydrodynamics, and kinetic theory models. Driven reactor plasmas. Atomic radiation processes and plasma-wall interactions. Mr. Conn (W)

**M237C. Fusion Reactor Technology and Design.** (Formerly numbered M252.) (Same as Electrical Engineering M214E.) Prerequisite: course 135A or consent of instructor. Fusion reactors, both magnetic and inertial. Operating conditions, power balance, system Q. Drivers for inertial confinement, magnet systems; blanket and shield design and analysis, induced radioactivity, tritium breeding and processing; radiation damage effects, design of reactors for electricity production or as hybrid systems. Mr. Conn (W,Sp)

**239BA-239BZ. Seminar: Current Topics in Transport Phenomena (2 to 4 units each).** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 239BA-239BZ.) 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. Seminar: Current Topics in Nuclear Engineering (2 to 4 units each).** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 239DA-239DZ.) 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).** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 239FA-239FZ.) Prerequisites: consent of instructor and additional prerequisites for each offering as announced in advance by the 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).** (Formerly numbered Chemical, Nuclear, and Thermal Engineering 239GA-239GZ.) Prerequisites: consent of instructor and additional prerequisites for each offering as announced in advance by the 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).** (Formerly numbered 253AA-253Z.) Prerequisites: consent of instructor and additional prerequisites for each offering as announced in advance by the department. Advanced treatment of subjects chosen 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.** Prerequisite: course 150A or consent of instructor. The course develops and applies the fundamental theorems of fluid dynamics. Ideal fluids, potential flow, vortex motion, and viscous flow are treated. The history of fluid dynamics is illustrated, with problems drawn from mechanics, aerodynamics, and geophysics. Mr. Kelly (F)

**250B. Viscous and Turbulent Flows.** Prerequisite: course 150A or consent of instructor. The course applies the fundamental principles of fluid dynamics to the study of fluid resistance. States of fluid motion are discussed in order of advancing Reynolds number; wakes, boundary layers, instability, transition, and turbulent shear flows. Mr. Kelly, Mr. Monkewitz (W)

**250C. Compressible Flows.** Prerequisite: course 150A or 150B or consent of instructor. 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. Mr. Charwat (Sp)

**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. Mr. Kelly (F)

**251B. Marine Hydrodynamics.** Prerequisite: courses 150A, 193A, and 193B, or equivalent, or consent of instructor. Basic hydrodynamics; small amplitude and shallow water theories; waves on beaches; ship waves; mathematical hydraulics; breaking of a dam. Mr. Kelly

**251C. Fluid Dynamics of Pollution.** Prerequisite: course 150A or consent of instructor. The course is designed to introduce to engineers and/or scientists of various disciplines the fluid mechanical aspect of pollution problems. The lectures discuss in depth the fluid dynamics of photochemical smog, oil slicks, and pollution in waterways. Mr. Liu

**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. Mr. Kelly (W)

**252B. Statistical Theory of Turbulence.** Prerequisite: course 150A or consent of instructor. The course develops statistical methods of wide utility in engineering, then applies them to turbulent flows. Topics include stochastic processes, kinematics of turbulence, energy decay, Kolmogorov similarity, analytical theories, and origins of Reynolds stress. Mr. Meecham

**253A. Advanced Engineering Acoustics.** Advanced studies in engineering acoustics, including three-dimensional wave propagation; propagation in bounded media; Ray acoustics; attenuation mechanisms in fluids. Mr. Meecham (F)

**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's theory; moving sources. Similarity methods. Selected detailed applications. Mr. Meecham (W)

**253C. Sound and Vibration.** Prerequisite: course 153A or 155A or consent of instructor. Theoretical analysis of the interaction of sound and structures; acoustic transmission through fluid layers and walls; structural wave propagation; multidimensional random processes using wave number and frequency space; response and radiation of infinite and finite structures; statistical energy analysis. Mr. Meecham

**254A. Special Topics in Aerodynamics.** Prerequisites: courses 150A, 150B and M192A, 192B, 192C, or equivalent, or consent of instructor. Special topics of current interest in advanced aerodynamics. Examples are transonic flow, hypersonic flow, sonic booms, and unsteady aerodynamics. Mr. Friedmann

**255A. Advanced Dynamics.** Prerequisites: courses 155 and M169A, or consent of instructor. Variational principles and Lagrange's equations. Kinematics and dynamics of rigid bodies; precession and nutation of spinning bodies. Mr. Mingori (F)

**255B. Mathematical Methods in Dynamics.** Prerequisite: course 255A. Concepts of stability; state-space interpretation; stability determination by simulation, linearization, and Liapunov's 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. Mr. Gibson (W)

**256A. Mechanics of Deformable Solids.** Prerequisites: courses 158A and M166, 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. Mr. Mal, Mr. Westmann (F)

**256C. Plasticity, Creep, and Thermal Stresses.** Prerequisite: course 156A or 158A 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. Mr. Westmann (Sp)

**256F. Analytical Fracture Mechanics.** Prerequisites: course 156A, 158A, or M166, and Materials Science and Engineering 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. Mr. Westmann (Sp)

**M257A. Elastic Wave Propagation I.** (Same as Earth and Space Sciences M224A.) Prerequisite: course 158A or M166 or consent of instructor. Review of elasticity theory; elastic waves in unbounded media; reflection and refraction of plane elastic waves; surface waves and guided waves in multilayered media; waves generated by concentrated loads; radiation from dislocations; attenuation; representative applications in engineering and seismology. Mr. Mai (F)

**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 the vibration of finite elastic bodies; dynamic theories of fracture; representative applications in engineering and seismology. Mr. Mai

**259A. Seminar on 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 a term paper or an oral presentation (possible help from guest lecturers). Mr. Charwat

**259AA-259ZZ. Seminar: 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.

**259B. Seminar on 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 cover dynamics, elasticity, plasticity, and stability of solids. Mr. Westmann

**262A. Advanced Mechanisms and Mechanical Systems.** Prerequisite: course 162A. The kinematic analysis and synthesis of mechanisms and mechanical systems, with special emphasis on use of modern analytical methods, are considered. The use of computer techniques is discussed. A broad group of example systems is studied. Mr. Yang (W)

**263A. Dynamics and Control of Machines and Electromechanical Systems.** Prerequisite: course 163 or consent of instructor. The analysis of complex machines and electromechanical systems. Emphasis on the performance and dynamic response of systems containing gears, elastic compliances, active feedback elements, and other complex components and subsystems. Both classical methods and modern computer-based techniques are applied. Mr. Yang

**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. Mr. Friedmann, Mr. Mingori

**263C. Current Topics in Design, Dynamics, and Control of Industrial Robots.** Prerequisite: course 163 or equivalent. Theory and implementation of industrial robotic manipulator systems. The modeling of kinematic structure, trajectory planning, and systems dynamics. Control concepts and control computer algorithms. Mechanical and electromechanical design considerations. Lectures and seminars on current literature. Individual student study projects. Mr. Yang (Sp)

**268B. Failure of Structural Systems.** Prerequisite: Civil Engineering 165B. Philosophy of structural safety. Principles of design for prevention of failure (other than buckling). Fatigue, brittle failure, delayed cracking, creep, design of efficient joints, environmental effects. Emphasis on current problems in actual structures. Mr. Sines (F)

**M269A. Dynamics of Structures.** (Formerly numbered 269A.) (Same as Civil Engineering M269A.) Prerequisite: course M169A. 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. Mr. Friedmann (F)

**269B. Advanced Dynamics of Structures.** Prerequisites: course M269A, Civil Engineering 265A. Analysis of linear and nonlinear response of structures to dynamic loadings. Stresses and deflections in structures. Structural damping and self-induced vibrations. Mr. Friedmann (W)

**M269C. Introduction to Probabilistic Dynamics.** (Formerly numbered 269C.) (Same as Civil Engineering M269C.) Prerequisite: course M169A. 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. Mr. Hart (Sp, even years)

**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. Mr. Friedmann (Sp, odd years)

**271A. Dynamic Systems Optimal Control.** (Formerly numbered Engineering Systems 271A.) Prerequisite: course 171C or consent of instructor. Optimal control problem formulation. Performance criteria for deterministic dynamic systems. Variational methods and Pontryagin's maximum principle for continuous and discrete-time models. Inequality constraints. Sensitivity analysis. Numerical computation methods for solving boundary value problems of optimal control. Applications in various fields. Mr. Mingori (F)

**271B. Dynamic Systems Stochastic Estimation and Control.** (Formerly numbered Engineering Systems 271B.) Prerequisites: courses 171C, 193A, 271A, or consent of instructor. Applied treatment of optimal state estimation and stochastic control problems for continuous and discrete-time dynamic models with state-space descriptions. Kalman filtering, smoothing, and prediction algorithms. Stochastic optimal controllers; the separation principle. Emphasis on efficient numerical computations. Applications in various fields. Mr. Leondes (F)

**271C. Dynamic Systems Identification, Stability, and Adaptive Control.** (Formerly numbered Engineering Systems 271C.) Prerequisite: course 271A or consent of instructor. Recommended: course 271B. Nonlinear system stability. Dynamic systems modeling, identification, and parameter estimation techniques. Combined identification and control and self-adaptive control. Mr. Leondes (W)

**271D. Seminar and Special Topics in Dynamic Systems Control.** (Formerly numbered Engineering Systems 271D.) 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. Mr. Leondes (Sp)

**M291A. Analytical Methods of Engineering I.** (Same as System Science M291A.) Prerequisites: Mathematics 131A and 132. Application of abstract mathematical methods to engineering problems. Review of elements of measure and integration, L2 theory — linear spaces and operators. Eigenvalue problems. Introduction to spectral theory — elementary distribution theory. Applications to problems in engineering. Mr. Gibson (F,W)

**M291B. Analytical Methods of Engineering II.** (Same as System Science M291B.) Prerequisite: course 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. Mr. Gibson (Sp)

**291C. Integral Equations in Engineering.** (Formerly numbered Engineering 291C.) 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. Mr. Westmann (Sp)

**298. Seminar in 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. A teaching apprenticeship under the 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.

Mr. Okrent (F,W,Sp)

**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 the 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.

## System Science

4532 Boelter Hall, 825-6830

### Professors

Masanao Aoki, Ph.D.  
Hector O. Fattorini, Ph.D.  
Stephen E. Jacobsen, Ph.D., *Chair*  
Bruce L. Miller, Ph.D.  
Donald M. Wiberg, Ph.D.

### Associate Professor

Richard E. Mortensen, Ph.D.

### Assistant Professor

Denham S. Ward, Ph.D.

## Scope and Objectives

System science is concerned with the development and application of the tools of modern systems engineering. The Department of System Science offers instructional and research programs in the areas of control and information systems, operations research and decision analysis, and systems modeling, and in the relationships and applications of these areas.

The academic programs of the department emphasize fundamental concepts and their modern theoretical foundations. In the area of control and information systems, the subject emphasis includes control and systems theory; stochastic processes; optimal control and computing techniques; identification, estimation, adaptivity; stochastic control and Kalman filtering; and communication systems. In the area of operations research, emphasis is on optimization theory and numerical implementation, including linear, nonlinear, and dynamic programming; applied stochastic processes, including renewal theory, Markov chains, queueing systems, and reliability; and optimal control of Markov decision processes.

In addition to research within the above areas, the department's faculty investigates applications in diverse areas such as control of flight vehicles and large space structures, dynamic economics, anesthesiology and cardiopulmonary physiology, magnetohydrodynamic systems, reliability and statistical quality control, and large-scale logistics systems.

The undergraduate program leads to a Bachelor of Science degree in Engineering. At the graduate level the department offers programs leading to the M.S., Engineer, and Ph.D. degrees.

## Bachelor of Science in Engineering

### System Science Major Field

Students working toward the B.S. degree with system science as their major field may anticipate job opportunities in such areas of industry as design and application of communication systems and control systems, including hardware, software, and firmware aspects; scientific computation and computing techniques in applications; operations research, including modeling, optimization, and systems analysis, with applications in business, planning, and design; data processing technology and software development; and systems integration, including large-scale systems analysis, with applications in the aerospace field and in such areas as public systems and urban services.

Course requirements for the system science major are as follows:

(1) Eight recommended core courses: Electrical Engineering 100, System Science 121C, 124A, 127B, and four additional courses.

If you substitute courses for any of the recommended courses listed above, they must satisfy the **engineering curriculum core** requirements as follows:

The core consists of eight courses (32 units) selected from the five subject areas listed below. The minimum and maximum number of units allowed is given for each.

**Computer Processes** (0 to 4 units): System Science 124A.

**Electrical Sciences** (4 to 8 units): Electrical Engineering 100, 100B.

**Mechanics** (8 to 12 units): Civil Engineering 108, Mechanical, Aerospace, and Nuclear Engineering 102, 103.

**Systems** (4 to 8 units): Engineering 106B, System Science 121C, 127B.

**Thermal and Materials Science** (8 to 12 units): Chemical Engineering M105A, M105D (or Mechanical, Aerospace, and Nuclear Engineering M105A, M105D), Materials Science and Engineering 14.

(2) System Science 120A; eight laboratory units from Computer Science 152A, Electrical Engineering 100L, 116L, System Science 128L; one upper division mathematics course (Mathematics 115A or 132 is recommended).

Major areas of interest in system science with relevant courses are:

**Control Systems and Optimization:** Computer Science 171, 172, 173, 183, Electrical Engineering 100B, Mechanical, Aerospace, and Nuclear Engineering 162A, System Science 120B, 122A, 128A, 129A.

**Information Processing Systems and Computing:** Computer Science 131, 141, 151A, 151B, 171, 181, 183, System Science 120B, 129A.

(3) Nine elective courses, including one course in engineering economics (Civil Engineering 106A is recommended). The elective courses, required major field courses, and core courses must include at least 23 units of engineering design and 46 units of engineering science.

(4) English 3; Chemistry 11A, 11B/11BL; Computer Science 10C or 10F; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A, 8B, 8C, 8D; one life science elective course.

(5) A minimum of seven courses from the humanities, social sciences, and/or fine arts approved list (at least three must be upper division; at least three — with two upper division — must be in the same academic department or otherwise reflect coherence with respect to subject matter; and one must satisfy the engineering and science in society requirement).

(6) Three free elective courses.

## Graduate Study

For information on graduate admission to the system science program and requirements for the M.S., Engineer, and Ph.D. degrees and certificate of specialization, see "Graduate Study" at the beginning of this chapter.

## Upper Division Courses

**120A. Probability.** (Formerly numbered Engineering 120A.) Prerequisites: Mathematics 32B, 33B. An introduction to the theory and application of probability, including random variables and vectors, distributions and densities, characteristic functions, limit theorems, preliminary concepts of stochastic processes.  
Mr. Miller, Mr. Mortensen (F,W)

**120B. Introduction to Stochastic Processes.** (Formerly numbered Engineering 120B.) Prerequisites: courses 120A, 121C, or equivalent. Introduction to the theory and application of stochastic processes, emphasizing stationary processes — properties and operations and mean-square estimation. Random and pseudorandom generation of processes with application to simulation. Elements of spectral analysis and FFT.  
Mr. Levan, Mr. Mortensen (Sp)

**121A. Elements of System Analysis.** (Formerly numbered Engineering 121A.) Prerequisites: Mathematics 33A, 33B. Not open for credit to students with credit for course 121C. Intended for nonengineering majors. Basic concepts of systems, dynamics, input-output behavior, analysis of signals; illustrations drawn from such fields as control and communication, economics and management sciences, life sciences, computer sciences.  
Mr. Aoki, Mr. Jacobsen (Sp)

**121C. Systems and Signals.** (Formerly numbered Engineering 121C.) Lecture, three hours; recitation, two hours. Prerequisites: Mathematics 32A, 32B, 33A, 33B, Physics 8A, 8B, 8C. Recommended: Electrical Engineering 100 or Mechanical, Aerospace, and Nuclear Engineering 102 or Physics 8D. Introductory course with illustrations from physical and life sciences. Input-output descriptions of systems, linearity; impulse and frequency responses, Fourier methods; transforms, analysis of signals. Introduction to digital filtering and fast Fourier transform. Computational aspects of system modeling and identification.  
Mr. Levan, Mr. Mortensen (F,W,Sp)

**122A. Principles and Feedback Control.** (Formerly numbered Engineering 122A.) Prerequisite: course 121C 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.  
Mr. Aoki, Mr. Wiberg (W)

**124A. Applied Numerical Computing.** (Formerly numbered Engineering 124A.) Lecture, three hours; recitation, two hours. Prerequisites: Computer Science 10C, Mathematics 33A, 33B, or equivalent. An introduction to numerical computing techniques: matrix computations, root finding, solutions of initial and boundary value problems of ordinary differential equations, interpolation and approximation.

Mr. Jacobsen, Mr. Wiberg (F,W,Sp)

**127B. Elements of Probability and Information.** (Formerly numbered Engineering 127B.) Prerequisite: Mathematics 33A or consent of instructor. An introduction to finite systems for coding and transmission of messages as character strings. Basic laws of probability and decision in finite systems. Information sources, entropy, noisy channels, capacity, discussion of the meaning and application of Shannon's theorems.

Mr. Jacobsen, Mr. Omura (Sp)

**128A. Linear Systems: The State-Space Approach.** (Formerly numbered Engineering 128A.) Prerequisite: course 121C. State-space methods of linear system analysis and design, with application to problems in networks, control, and system modeling.

Mr. Levan, Mr. P.K.C. Wang

**128L. System Science Laboratory.** (Formerly numbered Engineering 128L.) Laboratory, eight hours. Prerequisites: courses 120B, 122A, and consent of instructor. Students make actual measurements with real hardware in experimental investigations of such topics as frequency and transient response of a mechanical system; design, construction, and test of operational amplifiers, simple analog computers, and demodulations for AM and FM signals.

**129A. Introduction to Linear and Quadratic Programming.** (Formerly numbered Engineering 129A.) Prerequisites: Mathematics 32A, 33A, or consent of instructor. An introduction to the formulation and solution of linear and quadratic programming problems, with applications from engineering and economic systems. Linear programming: the simplex algorithm; duality theory. Optimization of quadratic functions subject to linear and quadratic constraints.

Mr. Aoki, Mr. Jacobsen (F,Sp)

**199. Special Studies (2 to 8 units).** Prerequisites: senior standing and consent of instructor. Individual investigation of a selected topic to be arranged with a faculty member. Enrollment request forms are available in department office. Occasional field trips may be arranged. May be repeated for credit.

(F,W,Sp)

## Graduate Courses

**200A. Linear Dynamic Systems.** (Formerly numbered 228A.) Prerequisite: course 128A 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.

Mr. Aoki, Mr. Balakrishnan (F,Sp)

**200B. Nonlinear Programming.** (Formerly numbered 272B.) Prerequisite: course 272A 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.

Mr. Aoki, Mr. Jacobsen, Mr. P.K.C. Wang (W)

**200C. Stochastic Processes.** Prerequisite: course 120B 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.

Mr. Mortensen, Mr. Wiberg (F,W)

**200D. Discrete Stochastic Processes.** Prerequisite: course 120A or equivalent or consent of instructor. Discrete stochastic process models in systems involving Poisson counting processes, renewal point processes, discrete-time Markov chains, Markov jump processes; applications to communication systems and networks, queueing systems, information processing, control and operations research.

Mr. Jacobsen, Mr. Miller (F,Sp)

**201A-201ZZ. Seminars in System Science.** Prerequisites: consent of instructor and additional prerequisites for each offering as announced in advance by the department. Lectures, discussions, student presentations, and projects in areas of current interest. Some sections are intended for advanced students in a particular field and for students undertaking Ph.D. dissertations in the field. May be repeated for credit. S/U grading.

**220A. Stochastic Theory of Queueing Systems I.** Prerequisite: course 200D or consent of instructor. Stochastic point processes. Topics in the theory of queues; the imbedded Markov chain method; equilibrium results for multiple server queues; method of stages; applications to communication, control, and systems optimization, operations research.

Mr. Jacobsen, Mr. Rubin (W)

**220B. Stochastic Theory of Queueing Systems II.** Prerequisite: course 220A. Advanced topics in queueing theory and systems; transient behavior, virtual waiting time and busy period, integral equation method, series of queues and priority queues. Inventories, communication, control, and systems problems.

Mr. Jacobsen, Mr. Rubin (Sp)

**220G. Graphs and Network Flows.** Prerequisite: course 129A or consent of instructor. Solution to analysis and synthesis problems which may be formulated as flow problems in capacity constrained (or cost constrained) networks. Tools of network flow theory are developed using graph theoretic methods and are applied to communication, transportation, and transmission problems.

Mr. Jacobsen, Mr. Miller (W)

**221. Linear Optimal Control.** Prerequisites: courses 122A (may be taken concurrently) or equivalent and 128A, or consent of instructor. An introduction to optimal control, with emphasis on detailed study of LQR, or linear regulators with quadratic cost criteria. Relationships to classical control system design.

Mr. Aoki, Mr. Levan, Mr. Mortensen (W,Sp)

**222A. Nonlinear Control.** Prerequisite: course 221. Techniques for studying nonlinear control systems, with emphasis on their stability; Liapunov's direct method; input-output stability; Popov's method; linearization.

Mr. P.K.C. Wang, Mr. Wiberg (F)

**222B. Stochastic Control.** Prerequisites: courses 120B and 221. Estimation and control of linear discrete-time and continuous-time stochastic systems; separation theorem and applications; Kalman filtering.

Mr. Aoki, Mr. Balakrishnan, Mr. Mortensen (Sp)

**222C. Optimal Control.** Prerequisite: course 221. Applications of variational methods. Pontryagin's maximum principle, dynamic programming and nonlinear programming to problems of optimal control theory and practical systems.

Mr. Mortensen, Mr. P.K.C. Wang, Mr. Wiberg (F,Sp)

**222EA-222EZ. Topics in Control.** Prerequisites: consent of instructor and additional prerequisites for each offering as announced in advance by the department. 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.

**M222F. Biological Control Systems.** (Same as Anesthesiology M222.) Prerequisite: course 122A or equivalent. Introduction to the application of control theory to the modeling and analysis of biological control systems, such as the respiratory system, cardiovascular system, and neuromuscular system. Emphasis on solving problems of current interest in biomedicine.

Mr. Wiberg

**M222G. Control and Coordination in Economics.** (Same as Economics M240.) Prerequisites: graduate standing in economics or engineering, 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.

Mr. Aoki

**227A. Signal Detection and Digital Communication.** Prerequisite: course 120B or consent of instructor. Applications of statistical decision theory to signal detection in radar and communication; coherent and noncoherent detection of known signals in noise; detection of stochastic signals; binary and multiple-signal digital communication; sequential detection.

Mr. Jacobsen, Mr. Omura, Mr. Yao (F,Sp)

**227B. Information Theory and Coding.** Prerequisite: course 227A. Information theory and coding from the viewpoint of digital communication systems; digital transmission and block coding; linear codes; convolutional codes, maximum likelihood decoding, and sequential decoding; ensemble error performance bounds of block and convolutional codes.

Mr. Jacobsen, Mr. Omura, Mr. Yao (W)

**227C. Estimation and Filtering.** Prerequisite: course 120B. Recommended: course 227A. Methods of determination of optimal statistical estimators applied to problems in stochastic processes, communication systems, analog modulation and demodulation.

Mr. Balakrishnan, Mr. Mortensen (Sp)

**227EA-227EZ. Topics in Communication.** Prerequisites: consent of instructor and additional prerequisites for each offering as announced in advance by the department. 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.

Mr. Mortensen, Mr. Yao (W,Sp)

**227F. Algebraic Coding Theory.** Prerequisite: course 227B or consent of instructor. Fundamentals of linear or parity-check codes and decoding algorithms based on the algebraic theory of finite groups and fields; cyclic codes; Hamming; Reed-Muller, Bose-Chaudhuri-Hocquenghem, and Reed-Solomon codes, and corresponding decoding algorithms.

Mr. Mortensen, Mr. Omura (F)

**227G. Rate Distortion Theory and Data Compression.** Prerequisite: course 227B or consent of instructor. Sources and distortion measures, rate distortion function and its evaluation for discrete and continuous sources, source coding theorems, block and tree source encoding techniques, and application to data compression. Student presentations of current research.

Mr. Jacobsen, Mr. Omura, Mr. Yao

**227S. Signal Processing in Communications.** Prerequisites: courses 227A and 227C, or consent of instructor. 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, Windowed DFT, systolic array; spectral analysis-windowing, AR, and ARMA; system applications.

Mr. Mortensen, Mr. Yao (Sp)

**227T. Telecommunication Networks and Multiple-Access Communications.** Prerequisites: courses 220A, 227B, or consent of instructor. 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.

Mr. Jacobsen, Mr. Rubin (Sp)

**229A. Numerical Techniques in Systems Optimization.** Prerequisite: course M291A. Recommended: course 129A or 272A or similar background. Computational methods for constrained extrema of functionals.

Mr. Balakrishnan, Mr. Jacobsen

**229B. Functional Analysis and Optimization.** Prerequisites: course M291A and consent of instructor. Functional analysis approach to optimization problems for dynamic systems — lumped and distributed. Emphasis on computational aspects.

Mr. Balakrishnan, Mr. Levan

**229C. Stochastic Differential Systems.** Prerequisites: courses 120B, 273B, and M291A, or equivalent, and consent of instructor. Integration with respect to continuous-parameter martingales; Radon-Nikodym derivatives in metric spaces; applications to filtering and stochastic control.

Mr. Balakrishnan, Mr. Mortensen

**229EA-229EZ. Topics in Optimization.** Prerequisites: consent of instructor and additional prerequisites for each offering as announced in advance by the department. Comprehensive treatment of one or more selected topics in such areas as system optimization theory and numerical techniques, system identification, stochastic systems, finite graphs, network flows, queueing systems, etc. May be repeated for credit with topic change.

Mr. Balakrishnan, Mr. Jacobsen (F,W)

**229J-229K-229L. Public Systems Analysis.** Prerequisite: graduate standing or consent of instructor. Exploration of the relevance of system science methodologies to research activities directed toward improvements in the systems that provide education, health care, transportation, communication, housing, environmental quality, and public safety services in urban areas.

**272A. Linear Programming.** (Not the same as course 272A prior to Fall Quarter 1980.) Prerequisite: Mathematics 115 or equivalent knowledge of linear algebra. Basic graduate course in linear programming. The simplex method and its variants. Convergence proofs. Duality theory. Geometry of linear programs. Parametric programming. Special structures such as decomposition and upper bounded variables. Complementary pivot theory. Quadratic programming.

Mr. Jacobsen, Mr. Miller (F)

**272BA-272BZ. Topics in Operations Research.** Prerequisites: consent of instructor and additional prerequisites for each offering as announced in advance by the department. 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.

**272C. Optimization Methods for Large-Scale Systems.** Prerequisite: course 200B. 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.

Mr. Jacobsen, Mr. Mortensen (Sp)

**273A. Dynamic Programming.** Prerequisite: course 200D or equivalent. Introduction to the mathematical analysis of sequential decision processes. The finite horizon model in both the deterministic and stochastic cases. The finite-state infinite horizon model. Methods of solution. Detailed examples from inventory theory, finance, and transportation systems.

Mr. Jacobsen, Mr. Miller (F, Sp)

**273B. Probability Theory for Applications.** (Formerly numbered M273B.) Prerequisites: courses 200C, 200D, and consent of instructor. Designed to prepare students for graduate courses in communication, control and operations research. Measure and integration; conditioning; convergence; stochastic processes and measures on function spaces. The Wiener process, Poisson process, Markov processes, Markov times, and martingales. Applications.

Mr. Jacobsen, Mr. Mortensen (W)

**275A. Statistical Design of Engineering Experiments.** Prerequisites: Mechanical, Aerospace, and Nuclear Engineering 193A, 193B. Matrix treatment of linear hypotheses in engineering experimentation. Statistical estimation, tests of hypotheses, analysis of variance, regression models. Randomized blocks, factorial, Latin square, multiple factor and level experiments. Principles of orthogonality, confounding, fractional replication, incomplete block designs with engineering applications.

Mr. Miller

**275B. Reliability Theory with Applications.** Prerequisite: course 120A 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.

Mr. Jacobsen, Mr. Miller (Sp)

**M291A. Analytical Methods of Engineering I.** (Same as Mechanical, Aerospace, and Nuclear Engineering M291A.) Prerequisites: Mathematics 131A and 132. Application of abstract mathematical methods to engineering problems. Review of elements of measure and integration, L2 theory — linear spaces and operators. Eigenvalue problems. Introduction to spectral theory — elementary distribution theory. Applications to problems in engineering.

Mr. Levan (F,W)

**M291B. Analytical Methods of Engineering II.** (Same as Mechanical, Aerospace, and Nuclear Engineering M291B.) Prerequisite: course 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.

Mr. Levan (Sp)

**298. Seminar in Engineering (2 to 4 units).** Prerequisites: graduate standing in system science, 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. A teaching apprenticeship under the 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.

Mr. Jacobsen (F,W,Sp)

**596. Directed Individual or Tutorial Studies (2 to 8 units).** Prerequisites: graduate standing in system science, consent of instructor. Petition forms to request enrollment may be obtained from the 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 system 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 system science, consent of instructor. S/U grading.

**597C. Preparation for Ph.D. Oral Qualifying Examination (2 to 16 units).** Prerequisites: graduate standing in system 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 system 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 system science, consent of instructor. Usually taken after student has been advanced to candidacy. S/U grading.

## Schoolwide Engineering Curriculum (Interdisciplinary)

6426 Boelter Hall, 825-2826

### Professors

Herbert B. Nottage, Ph.D.  
Allen B. Rosenstein, Ph.D.  
Ralph M. Barnes, Ph.D., *Emeritus*  
Edward P. Coleman, Ph.D., *Emeritus*  
J. Morley English, Ph.D., *Emeritus*  
Russell L. Perry, M.E., *Emeritus*  
Arthur F. Pillsbury, Engineer, *Emeritus*  
Bonham Spence-Campbell, E.E., *Emeritus*

### Adjunct Professors

Amos Freedy, Ph.D.  
Don Lebell, Ph.D.  
Arnold M. Ruskin, Ph.D.

### Visiting Lecturers

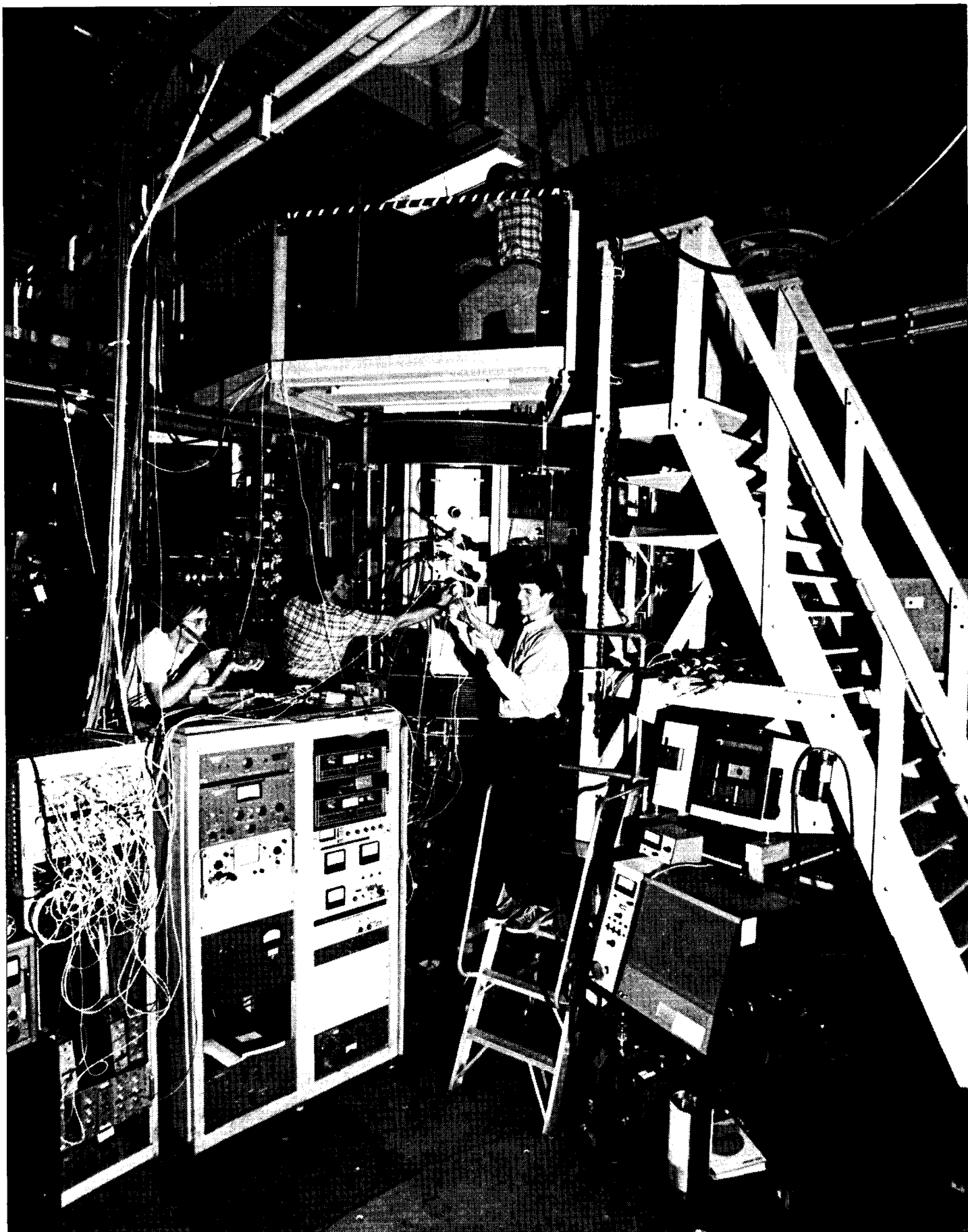
Gary L. Gasca, B.A.  
Jean D. Gasca, M.S.

## Bachelor of Science in Engineering

The curriculum leading to the Bachelor of Science degree in Engineering has a total of seven major field programs. Four of these (aerospace engineering, materials science and engineering, mechanical engineering, and system science) are described above under the individual departments.

The other three programs (bioengineering, systems engineering, and unified engineering) are schoolwide programs which do not fall under any specific department. Descriptions and requirements for the B.S. degree in each of these programs follows.





*UCLA's experimental fusion machine is a crucial step toward the development of an unlimited energy source.*



**Bioengineering Major Field****Area I**

Area I is an area of specialization within the context of the major fields of chemical engineering, mechanical engineering, systems engineering, etc., and is designed to provide (1) engineering fundamentals and (2) specialization in a basic engineering discipline combined with bioengineering and life science courses.

This area of specialization within bioengineering is intended for students who wish to emphasize a traditional engineering discipline (e.g., mechanical, electrical, chemical) while preparing for a possible career and/or graduate study in bioengineering.

Course requirements are as follows:

(1) Eight recommended core courses: Chemical Engineering M105A (or Mechanical, Aerospace, and Nuclear Engineering M105A), Civil Engineering 108, Electrical Engineering 100, Materials Science and Engineering 14, Mechanical, Aerospace, and Nuclear Engineering 102, 103, System Science 121C, and Chemical Engineering M105D or Mechanical, Aerospace, and Nuclear Engineering M105D (for applied biochemistry) or Engineering 106B (for biostructural mechanics and biotechnology).

If you substitute courses for any of the recommended courses listed above, they must satisfy the **engineering curriculum core** requirements as follows:

The core consists of eight courses (32 units) selected from the five subject areas listed below. The minimum and maximum number of units allowed is given for each.

*Computer Processes* (0 to 4 units): System Science 124A.

*Electrical Sciences* (4 to 8 units): Electrical Engineering 100, 100B.

*Mechanics* (8 to 12 units): Civil Engineering 108, Mechanical, Aerospace, and Nuclear Engineering 102, 103.

*Systems* (4 to 8 units): Engineering 106B, System Science 121C, 127B.

*Thermal and Materials Science* (8 to 12 units): Chemical Engineering M105A, M105D (or Mechanical, Aerospace, and Nuclear Engineering M105A, M105D), Materials Science and Engineering 14.

(2) Civil Engineering 106A (satisfies the engineering economics requirement); one upper division mathematics course selected in consultation with your faculty adviser; and the following courses, depending on your subject area:

*Applied Biochemistry*: Chemical Engineering 137A, 137B, 137D, Computer Science 196A, M196B, Engineering 106B, Materials Science and Engineering M107A, Mechanical, Aerospace, and Nuclear Engineering 180A, and

two courses from Biology 146, 154, Chemistry 156; Chemical Engineering 139A and Engineering 106C (satisfy the laboratory requirement).

*Biocybernetics*: Civil Engineering 160, Computer Science 171, 196A, M196B, Electrical Engineering 110A, 116A, Materials Science and Engineering M107A, Mechanical, Aerospace, and Nuclear Engineering 171A or System Science 122A, Mechanical, Aerospace, and Nuclear Engineering 171C or System Science 128A, System Science 120A; Electrical Engineering 100L, Biology 166 (two units of lab credit), and one additional laboratory course (satisfy the laboratory requirement).

*Biostructural Mechanics*: Civil Engineering 160, 165A, 165B, M166, M169A (or Mechanical, Aerospace, and Nuclear Engineering M166, M169A), Computer Science 196A, M196B, Mechanical, Aerospace, and Nuclear Engineering 162B, Kinesiology 122, Physiology 101; eight laboratory units (Civil Engineering 157B and Mechanical, Aerospace, and Nuclear Engineering 157 are recommended; an additional two-unit laboratory course must be taken if course 157B is selected).

*Biotechnology*: Civil Engineering 174A, Computer Science 196A, M196B, Materials Science and Engineering M107A, 180B, Mechanical, Aerospace, and Nuclear Engineering 171A, 180A, 193B or Psychology 150, and two courses from Psychology 115, 120, Public Health 100B, 100C, 100D, 110; eight laboratory units (Engineering 106C and 106D are recommended).

(3) Required technical elective courses: Chemistry 11C/11CL, 21, 23, and 25 (may be used to satisfy the life science requirement) for applied biochemistry and biocybernetics; Kinesiology 14 and one free elective course for biostructural mechanics.

(4) English 3; Chemistry 11A, 11B/11BL; Computer Science 10C or 10F; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A, 8B, 8C, 8D; one life science elective course.

(5) A minimum of seven courses from the humanities, social sciences, and/or fine arts approved list (at least three must be upper division; at least three — with two upper division — must be in the same academic department or otherwise reflect coherence with respect to subject matter; and one must satisfy the engineering and science in society requirement, which may also be satisfied by one of the free elective courses).

(6) Three free elective courses, which must be used to satisfy the required technical elective courses for the applied biochemistry, biocybernetics, and biostructural mechanics subject areas.

**Area II**

Area II is a multidisciplinary major field consisting of a core of courses in bioengineering and the physical and life sciences, and provides (1) engineering fundamentals, (2) breadth in the physical and biological sciences, (3) breadth in several bioengineering disciplines.

This area of specialization within bioengineering is intended for students desiring broad exposure to these three subject areas in preparation for a career and/or graduate study in bioengineering, biological science, behavioral science, or medical or dental school. This area satisfies all the life science requirements, except biological chemistry, for the Ph.D. program in Bioengineering at UCLA.

Course requirements are as follows:

(1) Eight recommended core courses: Chemical Engineering M105A, M105D (or Mechanical, Aerospace, and Nuclear Engineering M105A, M105D), Civil Engineering 108, Materials Science and Engineering 14, Mechanical, Aerospace, and Nuclear Engineering 102, 103, System Science 121C, 124A.

If you substitute courses for any of the recommended courses listed above, they must satisfy the **engineering curriculum core** requirements as follows:

The core consists of eight courses (32 units) selected from the five subject areas listed below. The minimum and maximum number of units allowed is given for each.

*Computer Processes* (0 to 4 units): System Science 124A.

*Electrical Sciences* (4 to 8 units): Electrical Engineering 100, 100B.

*Mechanics* (8 to 12 units): Civil Engineering 108, Mechanical, Aerospace, and Nuclear Engineering 102, 103.

*Systems* (4 to 8 units): Engineering 106B, System Science 121C, 127B.

*Thermal and Materials Science* (8 to 12 units): Chemical Engineering M105A, M105D (or Mechanical, Aerospace, and Nuclear Engineering M105A, M105D), Materials Science and Engineering 14.

(2) Civil Engineering 160, Computer Science 171, 196A, M196B, Electrical Engineering 110A, 116A, Materials Science and Engineering M107A, Mechanical, Aerospace, and Nuclear Engineering 171A or System Science 122A; Electrical Engineering 100L, Biology 166 (two units of lab credit), and four additional laboratory units; Civil Engineering 106A or any other course that satisfies the engineering economics requirement; System Science 120A or Mathematics 152A (satisfies the mathematics requirement); two elective courses selected in consultation with a bioengineering faculty adviser (e.g., acoustics, control systems, electronics, materials, computer science, mechanics, biotechnology, biocybernetics, etc.).

(3) A minimum of six life science core courses, including Biology 5 and 7 (may be used to satisfy the life science requirement), 166, Chemistry 21, 23, and at least one course from Chemistry 25 (may be used to satisfy the life science requirement), Kinesiology 14, Psychology 115; Chemistry 11C/11CL are required technical electives.

(4) English 3; Chemistry 11A, 11B/11BL; Computer Science 10C or 10F; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A, 8B, 8C, 8D; one life science elective course.

(5) A minimum of seven courses from the humanities, social sciences, and/or fine arts approved list (at least three must be upper division; at least three — with two upper division — must be in the same academic department or otherwise reflect coherence with respect to subject matter; and one must satisfy the engineering and science in society requirement).

(6) Three free elective courses which must be used to satisfy the required technical electives and other required courses in the life science core.

### Systems Engineering Major Field

Systems engineering is concerned with the planning, design, construction, management, and economics of public, private, civil, and living systems. The field embraces basic disciplines of engineering such as dynamic controls, decision theory, applied optimization, modeling, design methodology, problem solving, and reliability along with many areas of professional specialization, including man-machine environmental and industrial engineering systems, biosystems, and systems design.

Course requirements are as follows:

(1) Eight recommended core courses: Chemical Engineering M105A (or Mechanical, Aerospace, Nuclear Engineering M105A), Electrical Engineering 100, Engineering 106B, Materials Science and Engineering 14, Mechanical, Aerospace, and Nuclear Engineering 102, 103, System Science 121C, 124A.

If you substitute courses for any of the recommended courses listed above, they must satisfy the **engineering curriculum core** requirements as follows:

The core consists of eight courses (32 units) selected from the five subject areas listed below. The minimum and maximum number of units allowed is given for each.

*Computer Processes* (0 to 4 units): System Science 124A.

*Electrical Sciences* (4 to 8 units): Electrical Engineering 100, 100B.

*Mechanics* (8 to 12 units): Civil Engineering 108, Mechanical, Aerospace, and Nuclear Engineering 102, 103.

*Systems* (4 to 8 units): Engineering 106B, System Science 121C, 127B.

*Thermal and Materials Science* (8 to 12 units): Chemical Engineering M105A, M105D (or Mechanical, Aerospace, and Nuclear Engineering M105A, M105D), Materials Science and Engineering 14.

(2) Chemical Engineering M105D (or Mechanical, Aerospace, and Nuclear Engineering M105D), Civil Engineering 106A, Electrical Engineering 100B, Engineering 106C, 176A, Mechanical, Aerospace, and Nuclear Engineering 171A; Engineering 106C and 106D (satisfy the laboratory requirement); Mechanical, Aerospace, and Nuclear Engineering 193A (satisfies the mathematics requirement); Engineering 11 (required technical elective).

(3) Five elective courses to be selected from one of the following subject areas (choose three courses from item a and two from item a or b):

*Dynamic Controls:*

(a) Computer Science 171, Materials Science and Engineering M107A, Mechanical, Aerospace, and Nuclear Engineering 163, 171C, 193B.

(b) Mechanical, Aerospace, and Nuclear Engineering 155, Mathematics 115A, 131A, 131B, 132.

*Man-Machine Environmental and Industrial Engineering Systems:*

(a) Chemical Engineering 134C, Civil Engineering 174A, 181A, 184D, Materials Science and Engineering M107A, 180B, Mechanical, Aerospace, and Nuclear Engineering 171C, 180A, 193B, Psychology 148 (coherent pattern to be approved by adviser).

(b) Computer Science 196A, Management 140, 150, 182, 190, Psychology 115, Public Health 100A.

*Systems Design:*

(a) Civil Engineering 174A, Materials Science and Engineering M107A, Mechanical, Aerospace, and Nuclear Engineering 162A, 162B, 171C, 193B, System Science 127B.

(b) Computer Science 172, Materials Science and Engineering 180B.

(4) English 3; Chemistry 11A, 11B/11BL; Computer Science 10C or 10F; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A, 8B, 8C, 8D; one life science elective course.

(5) A minimum of seven courses from the humanities, social sciences, and/or fine arts approved list (at least three must be upper division; at least three — with two upper division — must be in the same academic department or otherwise reflect coherence with respect to subject matter; and one must satisfy the engineering and science in society requirement — Engineering 109 is strongly recommended).

(6) Two free elective courses.

### Unified Engineering Major Field

UCLA students seeking the broadest base for advancement in the professions or for graduate study in engineering have found the traditional unified engineering major field effective. Since you may not have had sufficient exposure to the engineering profession to make a reasonable choice of specialization and since most engineers eventually move from their undergraduate specialization, you may wish to select a foundation of courses that are essential and common to the many diverse areas of engineering and the professions. Election of specialized courses and areas may be delayed until the junior or senior year when you have had further exposure to the professions and can make more reasonable choices. The unified core is broad enough to support most specialized interests and still provide the flexibility necessary for interdisciplinary studies.

Course requirements are as follows:

(1) Eight recommended core courses: Chemical Engineering M105A, M105D (or Mechanical, Aerospace, and Nuclear Engineering M105A, M105D), Electrical Engineering 100, 100B, Engineering 106B, Materials Science and Engineering 14, Mechanical, Aerospace, and Nuclear Engineering 102, 103.

If you substitute courses for any of the recommended courses listed above, they must satisfy the **engineering curriculum core** requirements as follows:

The core consists of eight courses (32 units) selected from the five subject areas listed below. The minimum and maximum number of units allowed is given for each.

*Computer Processes* (0 to 4 units): System Science 124A.

*Electrical Sciences* (4 to 8 units): Electrical Engineering 100, 100B.

*Mechanics* (8 to 12 units): Civil Engineering 108, Mechanical, Aerospace, and Nuclear Engineering 102, 103.

*Systems* (4 to 8 units): Engineering 106B, System Science 121C, 127B.

*Thermal and Materials Science* (8 to 12 units): Chemical Engineering M105A, M105D (or Mechanical, Aerospace, and Nuclear Engineering M105A, M105D), Materials Science and Engineering 14.

(2) System Science 124A and one course from 121C or Chemical Engineering M192A or Mechanical, Aerospace, and Nuclear Engineering 191A or M192A, System Science 122A or Mechanical, Aerospace, and Nuclear Engineering 171A, System Science 129A or Engineering 176A; two laboratory courses, selected in consultation with your adviser, which should be part of a coherent package that includes one design laboratory; Civil Engineering 106A (satisfies the engineering economics requirement); Mechanical, Aerospace, and

Nuclear Engineering 193A (satisfies the mathematics requirement).

(3) Five elective courses, selected in consultation with your adviser, to include one materials constraint, one design constraint that provides a design project, and one applied probabilistic constraint from Chemical Engineering 130A, Civil Engineering 174A, Mechanical, Aerospace, and Nuclear Engineering 136A, System Science 127B.

(4) English 3; Chemistry 11A, 11B/11BL; Computer Science 10C or 10F; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 8A, 8B, 8C, 8D; one life science elective course.

(5) A minimum of seven courses from the humanities, social sciences, and/or fine arts approved list (at least three must be upper division; at least three — with two upper division — must be in the same academic department or otherwise reflect coherence with respect to subject matter; and one must satisfy the engineering and science in society requirement, which may also be satisfied by one of the free elective courses).

(6) Three free elective courses.

## Graduate Study

For information on graduate admission to the schoolwide engineering programs and requirements for the M.S., Engineer, and Ph.D. degrees and certificate of specialization, see "Graduate Study" at the beginning of this chapter.

### M.A.-Latin American Studies/ M.S.-Engineering

The school and the Latin American Studies Program have established an articulated degree program through which students may complete requirements for the M.S. in Engineering and the interdepartmental M.A. in Latin American Studies. After successful completion of the program, students are awarded both degrees simultaneously.

## Lower Division Courses

**11. Patterns of Problem Solving.** An introduction to patterns of reasoning in the process of problem solution and decision making. Exposure to concepts, theories, and techniques in the analysis and synthesis of total systems in our complex technological civilization.

Mr. Rubinstein (F,W,Sp)

**12. Applied Patterns of Problem Solving.** Prerequisite: course 11. An application of the tools and methods discussed in course 11 to three specific problems of a social and technical nature.

Mr. Rubinstein (Sp)

## Upper Division Courses

**106B. Introduction to Design and Systems Methodology.** Prerequisites: Computer Science 10C, Mathematics 32A, 32B, 33A, 33B. Theory of engineering design and synthesis. Models and modeling. Analysis, test, and evaluation. Methods for design optimization. Elementary decision theory. Student design projects.

Mr. Rosenstein (F,W,Sp)

**106C. Experimental Design Laboratory.** Laboratory, eight hours. Prerequisite: course 106B or equivalent. Creative experimental projects for student designs in any engineering domain where individual students have preparation and interest, exemplifying the professional method. Predicted idealized performance is compared to experimentally achieved realities. Student prize competition entries are encouraged.

Mr. O'Brien (W)

**106D. Engineering Systems Design Laboratory.** Recitation, one hour; laboratory, eight hours. Prerequisites: course 106C, advanced senior standing. Recommended: course 104. Similar to course 106C and normally a continuation thereof. Design projects generally emphasizing productivity, energy, environments, and process cost-benefit studies.

Mr. O'Brien (Sp)

**109. The Engineer and Society.** Prerequisite: senior standing. Selected lectures, discussions, oral and written reports related to creative engineering, its sociological and ecological impacts, present, future, and past relationships. Maximum student participation in topical selection and class structuring. Creativity and original thinking is emphasized.

Mr. O'Brien (F,W,Sp)

**176A. Introduction to Optimization Methods for Engineering Design.** Prerequisites: Computer Science 10C, Mathematics 32A, 32B, 33A, 33B. Introduction to applied optimization as an engineering design tool. Computational algorithms and chemical, civil, electrical, mechanical, and structural applications. Methods for solving the general unconstrained and constrained minimization problem. Methods for converting the general inequality constrained problem to a sequence of unconstrained problems.

Mr. Rosenstein (F)

## Graduate Courses

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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.

Mr. Kastenber (F,W,Sp)

**470A-470D. The Engineer in the Technical Environment (3 units each).** Limited to students in the Engineering Executive Program. Theory and application of quantitative methods in the analysis and synthesis of engineering systems for the purpose of making management decisions. Optimization of outputs with respect to dollar costs, time, material, energy, information, and manpower. Includes case studies and individual projects.

Mr. O'Neill

**471A-471B-471C. The Engineer in the General Environment (3 units, 3 units, 1½ units).** Limited to students in the Engineering Executive Program. Influences of human relations, laws, social sciences, humanities, and fine arts on the development and utilization of natural and human resources. The interaction of technology and society past, present, and future. Change agents and resistance to change. In Progress grading for courses 471B-471C only (credit to be given only on completion of course 471C).

Mr. Barthol

**472A-472D. The Engineer in the Business Environment (3 units, 3 units, 3 units, 1½ units).** Limited to students in the Engineering Executive Program. The 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 the firm, the community, and the 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).

Mr. Ruskin

**473A-473B. Analysis and Synthesis of a Large-Scale System (3 units each).** Limited to students in the Engineering Executive Program. A problem area of modern industry or government is selected as a class project, and its solution is synthesized using quantitative tools and methods. The project also serves as a laboratory in organization for a goal-oriented technical group. In Progress grading.

Mr. Ruskin

**495. Teaching Assistant Training Seminar.** Prerequisites: graduate standing in engineering and 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 the students. S/U grading.

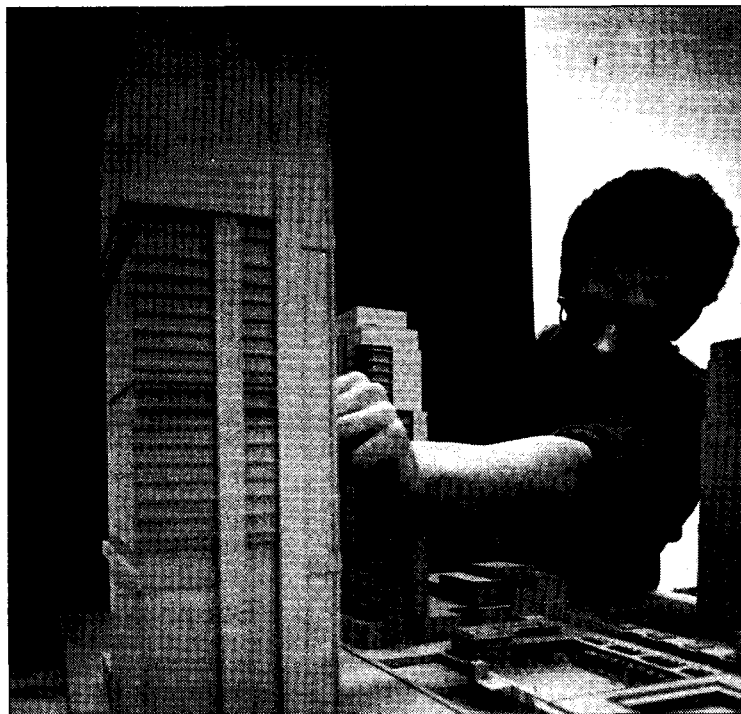
Mr. Kastenber (F)

**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. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. S/U grading.

# Graduate School of Architecture and Urban Planning

Samuel Aronl, Acting Dean

# 8



Professional education is the central concern of UCLA's Graduate School of Architecture and Urban Planning (GSAUP). Our belief is that a small, high-quality school of architecture and urban planning can make a greater contribution to professional education — under conditions of rapid professional change and experimentation — than can a large one in which the "distances" between members of the school grow unwieldy. Programs can be started — and ended — more readily and problems solved through informal means. It is important that our school functions as a *community*, and that is more readily achieved in a small school. Community has to be nourished; toward this end, we have encouraged measures ranging from democratic governance to a variety of schoolwide activities.

For a relatively young school, GSAUP enjoys an impressive position among the top schools in the country. It also enjoys a considerable international reputation. A noted regular faculty is supplemented by distinguished visiting faculty. The student body comes from around the world. Developed as a small school with an enrollment of 340, GSAUP encourages close interaction between faculty and student to maximize the educational experience.

To supplement the classroom experience and to help bring the public and the professional community into active relationship with the school, a series of public lectures and various exhibits are scheduled throughout the academic year. In addition, the school has created the Urban Innovations Group (UIG) as a clinic or practice arm where faculty and students undertake professional projects on a contract basis to provide opportunities for students to gain practical professional experience.

# Graduate School of Architecture and Urban Planning

1317 Architecture, 825-3791

The Graduate School of Architecture and Urban Planning at UCLA offers programs of study leading to the degrees of Master of Architecture (M.Arch.), M.A. in Architecture and Urban Planning, Ph.D. in Architecture, and Ph.D. in Urban Planning. Currently, the school offers educational opportunities for a broad spectrum of careers, including a number that are not yet common in practice, but which reflect emerging social needs. It offers a choice of two major programs: Architecture/Urban Design and Urban Planning.

## Architecture/ Urban Design

B315 Architecture, 825-0525,  
825-7857

### Professors

Marvin Adelson, Ph.D.  
Samuel Aron, Ph.D., *Acting Dean*  
Baruch Givoni, Ph.D.  
Thomas S. Hines, Ph.D.  
Murray A. Milne, M.Arch.  
William J. Mitchell, M.E.D.  
Charles W. Moore, Ph.D.  
Barton Myers, M.Arch.  
Thomas R. Vreeland, Jr., M.Arch.

### Associate Professors

F. Eugene Kupper, M.Arch.  
Jurg Lang, Dipl.Arch. ETH.  
Robin Liggett, Ph.D.  
George Rand, Ph.D., *Associate Dean*  
Richard Schoen, M.Arch.  
George Stiny, Ph.D.

### Assistant Professor

Brit Andresen, B.Arch.

### Lecturers

Berge Aran, Ph.D.  
Charles Griggs, B.Arch.  
Jeffrey Hamer, M.Arch.  
Charles Jencks, Ph.D.  
Anthony Lumsden, B.Arch.  
Donald Mills, B.Arch.  
John Ruble, M.Arch.  
Robert Yudell, M.Arch.

### Adjunct Associate Professors

Franklin Israel, M.Arch.  
Kuppuswamy Iyengar, M.Arch.

### Degrees Offered

Architecture/Urban Design . . . . M.Arch. I, M.Arch. II, M.A., Ph.D., Certificate of Specialization  
Urban Planning . . . . . M.A., Ph.D.

### Adjunct Assistant Professors

Christopher B. Johnson, B.Arch.  
Barton Phelps, M.Arch.  
William Hubbard, M.Arch.

### Scope and Objectives

Architecture/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 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.

### Master of Architecture I

#### Admission

The M.Arch. I program is open to students holding a bachelor's degree (or its equivalent) comparable in standards and content to a bachelor's degree from the University of California. Applications are accepted from students with a variety of backgrounds. No academic or experiential training in architecture is required, although many students have had experience in this field prior to admission.

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, applicants should submit the "Departmental Supplement," available from the Admissions Office, Architecture/Urban Design, Graduate School of Architecture and Urban Planning, UCLA, Los Angeles, CA 90024.

### Major Fields or Subdisciplines

No in-depth specialization is required within the context of the M.Arch. I program. However, you 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 application, during the second year of study.

Specializations are currently available in the following areas: urban design; policy, programming, and evaluation (including social building); technology (including energy conserving design); design theory and methods (including computer-aided design); history, analysis, and criticism of architecture.

### Course Requirements

You must complete a minimum of 27 courses, at least 24 of which must be graduate courses. The total number of units required is 108. The required courses, listed below, must be taken in the sequence indicated.

#### First Year

Fall: Courses 411, 421, 191  
Winter: Courses 412, 437, 431  
Spring: Courses 413, 442, 432

#### Second Year

Fall: Courses 414, 433, 291, elective  
Winter: Courses 415, 441, elective  
Spring: Elective studio/project, plus two other electives

#### Third Year

Fall: Course 416, two electives  
Winter: Elective/studio, course 461, elective  
Spring: Course 598A

Elective courses allow you to explore in depth specific subject areas and to gain exposure to a variety of topics. You are required to take a minimum of seven elective courses. At least four of these must be taken within the school. During the second year at least two electives

must be in preparation for undertaking a specific studio or project in the Spring Quarter of your second year.

If you can demonstrate that you already have adequate background in topics covered by specific required courses, you may petition to waive those courses and replace them with electives. However, permission to waive required courses does not reduce the minimum number of 27 courses required for the M.Arch. I degree nor does it reduce the nine-quarter residence requirement. The petition 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.

Students with undergraduate degrees in architecture or undergraduate degrees with majors in architecture may, at the end of their first quarter, petition the curriculum committee for advanced standing. You are then permitted to waive specified required courses and may enter second-year courses at the beginning of your second quarter. A petition for advanced standing should include a transcript documenting relevant prior academic work, a portfolio demonstrating level of design competence, and a plan showing how waived courses will be replaced by a program of elective work in specified areas of specialization. Advanced standing requires the concurrence of both the curriculum committee and the faculty member in charge of each specific course to be waived. It does not reduce the number of courses (27) required for the M.Arch. I degree nor does it reduce the nine-quarter residence requirement.

You must enroll in at least four and no more than eight units of Architecture and Urban Planning 598A. You may also apply eight units of course 596A toward the unit requirements for graduation with prior consent of your adviser. No more than eight units may be applied without consent of the curriculum committee; application of more than 16 units requires Graduate Division approval. A maximum of eight units of 596 courses taken outside the school may be applied toward graduation. All independent work will be graded on an S/U basis.

### **Thesis or Comprehensive Examination Plan**

M.Arch. I students generally present a large-scale design project that functions as a design thesis at the end of their three-year course of study. Occasionally, students who have already demonstrated superior design skills will elect to do more research-oriented work instead. Because of the format required by the nature of an architectural presentation, the projects are all classified as "comprehensive examinations."

You should obtain faculty approval of project topics at least three months, and preferably six months, before presentation dates.

## **Master of Architecture II**

### **Admission**

The M.Arch. II program emphasizes advanced studies in architecture and requires that applicants have completed a five-year professional degree in architecture and hold a B.Arch. degree or the equivalent.

You must state your major area of specialization and your choice of the comprehensive examination or thesis option on your application, as you are admitted to a specific major and option and may change only by petition to the advanced graduate studies curriculum committee. A minimum of three academic quarters in residence is required. This is a full-time program, and you are expected to remain continuously in residence until all academic work is completed, unless a leave of absence is granted.

If your primary language is not English, you are required to score at least 580 on the Test of English as a Foreign Language (TOEFL). In addition, you must take the English Proficiency Examination on arrival at UCLA and, beginning in your first quarter of residence, take any required English courses. Because such courses may not be applied toward the minimum course requirement, you should expect to spend additional time in residence.

### **Major Fields**

You are required to select your major area at the time of application to the program and must take a minimum of 24 units of coursework in that area. The six major areas include architectural design; urban design; policy, programming, and evaluation; technology; design theory and methods; and history, analysis, and criticism of architecture.

### **Course Requirements**

A minimum of 36 units of coursework (normally nine four-unit courses) is required. At least 24 units must be at the graduate level; the remaining 12 units may be either upper division or graduate courses. No more than eight units of 500-series courses may be applied toward the requirements for graduation.

Students in architectural design are required to complete at least 12 units of advanced design studio work plus 12 units of approved seminar courses.

Students in urban design must complete a year-long sequence of related urban design studio and seminar courses consisting of one studio and one seminar course each quarter.

Students in the other four major areas (policy, programming, and evaluation; technology; design theory and methods; history, analysis, and criticism of architecture) are required to complete an approved sequence of three core courses consisting of two lecture/seminar courses which establish substantive founda-

tions and a project course (Architecture and Urban Planning 403) which explores applications, plus 12 units of elective courses in the major area.

There may be more than one approved core sequence in each of the areas. The curriculum committee establishes and publishes a list of approved core sequences, which is reviewed and revised as necessary on a yearly basis. In special cases you may propose core sequences not on the list for approval by the committee.

### **Thesis Plan**

Under this plan you may submit either a written thesis or a design project. A three-person thesis committee must be established at least one quarter before submission of the thesis, and you must take eight units of Architecture and Urban Planning 598A, which may not be applied toward the minimum course requirement. The thesis may, in exceptional cases, be presented after three quarters in residence, but you should normally expect to take from four to six quarters to complete the thesis plan. The thesis must be submitted within two years after entry into the program.

### **Comprehensive Examination Plan**

Under this plan you are required to establish a comprehensive examination chair at least one quarter before taking the examination and to receive approval of an examination topic from the curriculum committee. You are then required to take four units of Architecture and Urban Planning 597A, which may not be applied toward the minimum course requirement. The examination consists of a research paper or design project on the approved topic, which is to be publicly presented and defended after the completion of all required coursework, usually at the end of the Spring Quarter, or at any point up to 12 months later. The faculty examination committee votes on acceptance or rejection. In the event of rejection, you may repeat the examination once.

## **Master of Arts in Architecture/Urban Planning**

### **Admission**

This program offers an academic degree and prepares students to do specialized research or teaching in fields related to the architectural profession. Applicants are required to hold a bachelor's degree (or its equivalent) comparable in standards and content to a bachelor's degree from the University of California. They should possess the experience and knowledge that would allow them to do 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, applicants should submit the "Departmental Supplement," available from the Admissions Office, Architecture/Urban Design, Graduate School of Architecture and Urban Planning.

### Major Fields or Subdisciplines

You are required to focus your work on a specific academic area or professional issue. See "Major Fields" under the M.Arch. I for specializations currently available. In addition, you have the option of the Open M.A. wherein you structure your own area of interest from the courses offered by the school.

### Course Requirements

(1) Candidates for the M.A. are expected to be in residence at UCLA for at least two years and undertake six quarters of study.

(2) A thesis or a comprehensive project is required. When the committee members have signed the thesis proposal, you may sign up for Architecture and Urban Planning 598A and begin work on the thesis itself. The course should be taken at some point during your last year of study.

(3) You are required to complete a minimum of 16 courses (64 units) of graduate or upper division work, at least 12 of which must be graduate courses.

(4) You must select and pursue one area of specialization.

(5) Up to seven courses may be taken from upper division or graduate courses offered campuswide.

(6) The University of California minimum requirements for the Master of Arts degree must be completed.

(7) You must enroll in at least four and no more than eight units of course 598A. You may also apply 12 units of course 596A toward the unit requirements for graduation with prior consent of your adviser. No more than 12 units may be applied without the consent of the curriculum committee; application of more than 16 units requires Graduate Division approval. A maximum of eight units of course 596 taken outside the school may be applied toward graduation. All independent work will be graded on an S/U basis. (Courses in the 400 series may not be applied toward the graduate course requirement for the M.A. degree.)

### Thesis or Comprehensive Examination Plan

M.A. students can choose to present a design project as a comprehensive examination (see M.Arch. I) or to do a research thesis. They should make this determination at least three months prior to the anticipated date of graduation.

## Ph.D. in Architecture

### Admission

Applicants must hold a bachelor's degree from an accredited college or university. It is anticipated that most applicants will have completed a first professional degree in architecture (a five-year B.Arch. or a professional M.Arch. degree). Students with degrees in other fields are also encouraged to apply but may, at the discretion of the Ph.D. program committee, be required to complete specific coursework as a condition of admission.

Applicants are required to submit three letters of recommendation, academic transcripts, a statement of purpose, a proposed program of studies, a short biographical resume, and examples of research and/or creative work. An interview may also be required.

Applicants whose native language is other than English are required to pass the Test of English as a Foreign Language (TOEFL) before entering.

Criteria considered for admission include (1) evidence of capacity for original scholarship and research in architecture, and ability to achieve eminence in the field; (2) an outstanding academic record, including grades (3.5 minimum GPA), 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.

### Preliminary Evaluation of Research Skills:

Students who have any background deficiencies in research skills essential for work in their chosen areas of Ph.D. specialization (e.g., mathematics, statistics, or computing) will be required to round out their knowledge early in their residence. The Ph.D. program committee conducts a formal evaluation of each student at an early stage to assure adequacy of research skills. You may apply for this evaluation no earlier than your second quarter of residence, and no later than the fourth quarter. In order to undergo the evaluation you must have made up any background deficiencies and present a research paper or other evidence of capacity for original work.

If you are unable to satisfy the committee of the adequacy of your research skills, you will either be given specific advice on how to make up remaining deficiencies and apply for reevaluation at a later date, or else be advised to leave the program. If you do not satisfy the committee by the end of the sixth quarter, you will be subject to termination from the program.

### Major Fields

Students are required to undertake programs of study that include one major area selected from the following: policy, programming, and evaluation; technology; design theory and methods; and history, analysis, and criticism 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 faculty members willing to provide the necessary instruction and guidance.

### Minor Field Requirement

You are required to include in your program of study at least one minor field, which must be from outside the Architecture/Urban Design Program (i.e., outside the school or within the Urban Planning Program). The objectives of the minor field requirement are to assure adequate academic breadth in your preparation and to encourage participation in the general intellectual life of the University. Students planning their minor field courses will be advised accordingly.

The normal method of demonstrating competence in the minor field is to complete at least 16 units of coursework, which represents a unified course of study in that field, with a grade of B or better. If a qualified Architecture/Urban Design faculty member is willing to provide the necessary supervision, the Ph.D. program committee may accept an alternative method of completing this requirement (e.g., a substantial research project).

### Mathematics, Computing, or Foreign Language Requirement

You are expected to develop adequate skills in mathematics, computing, or foreign languages, as appropriate to your field of specialization, and are strongly advised to complete this requirement as early as possible. One of the following is required.

(1) Proficiency in mathematics and computing as demonstrated by passing an approved group of four graduate or upper division courses in mathematics, statistics, and/or computing with a grade of B or better. The courses must not overlap in content and normally require prerequisites which may not be applied toward the four-course requirement.

(2) Satisfactory reading knowledge of two foreign languages relevant to your field of specialization, with standards to be determined by a departmental committee.

(3) Superior knowledge of one foreign language relevant to your field of specialization, with standards to be determined by a departmental committee.

With approval of the Graduate Division, English may be used to satisfy the foreign language requirement if your language of education is not English.

Courses applied toward this requirement may not also be applied toward a major or minor field requirement.

## Course Requirements

Generally you are required to take sufficient coursework to provide adequate preparation for the qualifying examination and the dissertation.

Each student in the program is required to take a proseminar in architectural theory, normally in the Fall Quarter of the first year. The proseminar is intended to establish a general orientation to the field of architecture that will insure that you have an appropriate foundation for the acquisition of competence in the theory, methods, and history of architecture. In consultation with your adviser, you are expected to take whatever additional coursework is necessary to reach the required level.

Holders of a professional degree in architecture before admission to the program must complete four quarters in residence and 48 units of coursework in order to become eligible to take the qualifying examination. If you have an M.Arch. I, M. Arch. II, or M.A. degree in Architecture from UCLA, the Ph.D. program committee may, at its discretion, reduce these requirements to three quarters in residence and 36 units of coursework. All other candidates are required to complete six quarters in residence and 72 units of coursework.

Half of the units must be graduate courses in architecture/urban design, and an overall GPA of 3.0 or better must be maintained. In exceptional cases, and with prior approval of the Ph.D. program committee, upper division courses may be applied toward these requirements. At least 32 units must be in 200-series courses.

Each of the major field core sequences of three to five courses includes one project course (Architecture and Urban Planning 403), which focuses on the practical application of research results to architectural problems and provides an opportunity to explore interrelations between the research and professional concerns of the field.

Students who are admitted to the Ph.D. program without having the background of a professional degree in architecture are required to take at least 24 units of basic professional courses (400 series) in architecture approved by the Ph.D. program committee.

No more than eight units of course 596A may be applied toward degree requirements, but eight units of course 597A and as many units of course 599A as necessary may be applied.

## Qualifying Examinations

After successful completion of the preliminary evaluation of research skills, the mathematics, computing, or foreign language requirements, and the course requirements, you may apply to take the qualifying examinations. They consist of a comprehensive written examination in the major field, a written examination in the minor

field (this may be waived under certain circumstances), and an oral examination focusing primarily on your proposed dissertation. The qualifying examinations should be completed in one quarter and must not extend over more than two quarters.

The major and minor field examinations are conducted by a five-member examination committee. The written examination in the major field is a substantial exercise followed by an oral presentation to the committee. The work must demonstrate your ability to teach an introductory course in the field and contribute to the progress of the field through scholarship and research. The written examination in the minor field is a short exercise and may be waived for candidates who hold a recognized master's degree in the field in which the minor is located, or at the discretion of the examination committee on the basis of outstanding grades (at least two A grades out of the four minor field courses).

The University Oral Qualifying Examination, conducted by the doctoral committee, takes place after successful completion of the two written qualifying examinations. It explores your proposed dissertation topic and your ability to undertake the proposed work successfully. After passing the oral examination, you are advanced to candidacy (the C.Phil. degree is not awarded) and may begin work on your dissertation.

## Final Oral Examination

The examination involves a defense of the completed dissertation before the doctoral committee.

## Upper Division Courses

**187. Planning and Designing Our Cities.** An introduction to urban planning and urban design, with emphasis on methods and tools used in practice. Starting with an overview of the planning field, the course addresses itself to physical planning for redevelopment, for projects in expanding areas, and for new towns. Lectures (with illustrated examples), field visits, and presentation of the students' own projects create the framework for expanding the understanding of the urban planning and design process.

Mr. Kamnitzer

**189. Premodern and Postmodern Architecture.** Consideration of 19th-century revivalism and the response of architects to a growing historical awareness. Issues of eclecticism within the beaux arts and Art Nouveau movements are studied. These same themes are reconsidered in terms of the postmodern era.

Mr. Jencks (W)

**190. The Human Environment: An Introduction to Architecture and Urban Planning.** The course aims to introduce students to the kinds of problems that arise in creating and maintaining an environment for urban activities, and the approaches and methods of architecture and urban planning in helping to cope with such problems. Students are exposed to the complexities involved in giving expression to human needs and desires in the provision of shelters and movement systems, to the possibilities and limitations of technology and building forms, and to the issues involved in relating the human-made to the natural environment. Students are encouraged to comprehend the major urban issues both as citizens and as potential technical experts.

(F)

**191. Modern Architecture.** A brief examination of the tenets of Western architecture after the Renaissance, the accelerating eclecticism of the 19th century, the basis of the revolutionary movements of the 20th century in Germany, Holland, Austria, Italy, France, Russia, and the United States, and the subsequent extension and rejection of those movements after World War II. Though the "International Style" is the central figure of this drama, its ancestors occupy the stage as well.

(F)

**199. Special Studies (2 to 8 units).** 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. Architectural Theory (2 to 4 units).** Lecture, three hours. Varying present-day and historical descriptive and normative frameworks for the discussion of architecture and its relation to other aspects of the environment. The effects of literary, art, and other forms of criticism on architectural theory. Epochs and styles, ideologies, and social settings for architecture.

**203A-203B. Decision Making in Planning and Design.** Lecture, three hours. Statistical decision theory and alternative design solutions for coping with different degrees of future uncertainty in planning; nature of models for rational behavior in presence of conflicts of interest; individual and group decision making under uncertainty.

Mr. Adelson

**204. Imaging the Future.** Lecture, 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 the role of forecasting in environmental planning, design, and management processes.

Mr. Adelson

**218A-218B. Urban Structure: Analysis and Modeling.** Discussion, three hours. Prerequisite: consent of instructor. Generation of conceptual frameworks on the urban structure based on empirical data, urban theories, and mathematical models. Individual and group research on selected aspects of urban systems. Application of models in decision making, particularly in urban design projects.

Mr. Lang

**219. Special Topics in the Built Environment (2 to 8 units).** Lecture, three hours. Seminar on topics in the built environment selected by the faculty. May be repeated for credit.

**224. Methodology: Design Theory.** Lecture, three hours. A survey of the literature on systematic methods and design, including problem solving, information handling, artificial intelligence, and decision making in the design process. May be repeated for credit.

(F,W)

**226A. Computer Applications in Architecture and Urban Planning I.** Lecture, three hours. Prerequisite: an introductory course in computer programming (course 227A, Management 404, or equivalent). The logic of problem solving using the computer, with emphasis on writing and executing programs specifically applicable to architecture, urban design, and planning. Two computer languages are introduced: Fortran IV and PL/I.

Ms. Liggett

**226B. Computer Applications in Architecture and Urban Planning II.** Lecture, three hours. Prerequisite: course 226A or equivalent. Seminar on advanced computing techniques and modeling, with emphasis on data structures in the fields of architecture and urban planning. The course uses the PL/I programming language and assumes proficiency in that language.

**227A. Computer Graphics.** Discussion, three hours. Prerequisite: consent of instructor. Assuming a basic familiarity with computer programming, the course provides an introduction to the theory, techniques, and applications of computer graphics in architecture. It consists of a series of lecture/seminars on technical topics, plus intensive practical work conducted on two storage-tube graphics terminals.

Ms. Liggett, Mr. Mitchell (F)

**227B. Computer-Aided Design.** Discussion, three hours. Prerequisite: consent of instructor. An examination of existing computer-based systems for aiding decision making. Topics include artificial intelligence, self-organizing systems, and hardware capabilities and limitations. An attempt is made to develop and test components of a computer design partner.

Ms. Liggett, Mr. Mitchell (W)

**228A. Mathematical Models in Architectural Design.** Lecture, three hours. Prerequisite: consent of instructor. An introduction to concepts and techniques of mathematical modeling in architecture. Basic mathematics is needed to develop models. The formal description of built form: data structures. Practical case studies and exercises dealing with the use of mathematical models in architectural design.

Mr. Stiny (F)

**228B. Research in Design Methods.** Lecture, three hours. Prerequisite: consent of instructor. Developmental work in a specific method of design. Theoretical and operational problems of a design method: degree of systemization, man-machine relationships, areas of application, problems of translation, and compatibility with other methods. (W)

**255. Urban Morphology: Definitions and Consequences.** Lecture, three hours. An analysis of urban spatial form and its socioeconomic and behavioral bases and consequences. Special emphasis on ecological approaches (e.g., social area analysis, urban growth models, factorial ecology) and behavioral analysis (cognitive mapping, urban imagery, attitudes toward human and material resources).

**258. Research in Human-Environment Relations (2 to 8 units).** Selected topics for research in social and behavioral relations to the environment. The course is intended to provide a teaching space for visiting teachers in the social and behavioral sciences. May be repeated for credit.

**271. Elements of Urban Design.** Lecture, three hours. Introduction of basic knowledge of elements and methods of urban design. A multidisciplinary approach leading to an understanding of the political, socioeconomic, and technological framework of urban systems and its dynamic interrelations.

Mr. Lang (F)

**272. Real Estate Development for Planners and Architects.** Introduction to the real estate development process specifically geared to students in planning, urban design, and architecture. Financial decision model, market studies, designs, loan package, development plan, and feasibility study. Lectures and projects which integrate the development process with proposed design solutions which are iteratively modified to meet economic feasibility tests.

Mr. Kamnitzer

**274. Introduction to Physical Planning.** Lecture, three hours. Overview of the influence of planning determinants on the design of urban areas, with illustrations of the consequences for urban design. Generally taken in the first year.

**275. Urban Form.** Seminar on recent and historical urban design projects, elucidating the planning objectives, structuring principles, operational characteristics, physical components, and environmental consequences of each project. Development of a definitional framework, analytical criteria, and practical direction in the examination of urban form.

**278. Research Methods in Human-Environment Relations (2 to 4 units).** Lecture, three hours; discussion, two hours. A survey of a variety of research methods applicable to problems on the human-environment interface, including both those now frequently employed (survey research) and others not so well known (ecological psychology, ethnomethodology). The course emphasizes the application of research methods to selected exercises and specific field situations.

**279A. Housing for Developing Countries.** Discussion, three hours. Considerations of sociocultural, economic, and political factors, materials, structural systems, shelter accessories, and manufacturing technologies related to the priorities of developing countries in housing policies and the planning and design of shelter. Mr. Aroni (Sp)

**281. Introduction to the History of the Built Environment in the United States.** Lecture, three hours. Open to advanced undergraduates by consent of instructor. An introduction to American urban, environmental, and architectural history, a survey of the main economic, political, social, and aesthetic forces forming the built environment. The course covers the Colonial period to the present, emphasizing the importance of the spatial design of cities and buildings to public policy. Ms. Hayden

**283. History of the American Household and the American Home.** Lecture, 90 minutes; discussion, 90 minutes. Prerequisite: course 281 or consent of instructor. An introduction to the history of housing design in the United States, emphasizing the changing roles of women and men from Colonial times to the present and the effects of these social changes on the physical form of the dwelling and the settlement. The concerns of professional architects and planners are discussed, as well as the activity of bankers, builders, and homemakers. Ms. Hayden

**284. The Ideal City in History.** Prerequisite: course 281 or consent of instructor. Since the time of Thomas More's *Utopia*, creating the ideal city has been a favorite device used by novelists, political theorists, economic and social critics, and architects to criticize existing society and demonstrate the dramatic possibilities of thoroughgoing reform. The seminar deals with the utopian tradition in its literary, political, and aesthetic forms, examining satirical cities, moral cities, and urban fantasies from the 16th century to the present. Ms. Hayden

**286. History of Specific Building Types.** Lecture, three hours. Consideration of socioeconomic and historical factors involved in the development of a specific building type (i.e., theaters, schools, museums, and hospitals). May be repeated for credit.

Mr. Aran

**287. Ancient and Islamic Architecture in the Mediterranean Area.** Prerequisite: consent of instructor. The influence of the physical and social environments on building activity throughout the history of societies around the Mediterranean. Special emphasis on architectural development in Greece. Mr. Aran

**288. Architectural History: Medieval Period.** Prerequisite: consent of instructor. A survey of European architecture from the year one thousand, with selected buildings and environments considered in terms of the cultural contexts. Mr. Aran

**289. Special Topics in Architecture and Urban Design (2 to 4 units).** Prerequisite: consent of instructor. Selected academic topics initiated by students, student teams, or faculty and directed by a member of the faculty. May be repeated for credit.

**291. Architectural Programming and Theory.** The first part of the course explores concepts and methods of architectural programming and its interrelation to the design process; planning of the design process; various techniques for the determination of program contents, basic conditions, resources, and constraints; the identification of solution types for given situations. In the second part of the course, the theoretical background is applied in the development of a program for the thesis. (F)

**292. Social Building Theory.** Prerequisite: consent of instructor. Review of basic literature on application of social science theory and data to the design and development of sociotechnical systems.

Mr. Rand

**294. Environmental Psychology and Sociology.** Prerequisite: consent of instructor. Environmentally based and interpreted approach to psychological states and individual and social behavior. Territoriality, density, stress and adaptation, environmental cognition, aesthetics, and preferences are considered. Mr. Rand

**296. Social Analysis of Buildings and Settings.** Prerequisite: consent of instructor. The class conducts a ten-week evaluation of a building in Los Angeles, designed and built within the past five years, where the architect, builder, initiator, or other parties involved in the inception process are available for cooperative review of the facility. The structure of the course involves a review of evaluation theory in the first three weeks and a series of exercises performed on a single building, looking at its effectiveness and character through a variety of approaches to evaluation. The class produces a comprehensive evaluation using multiple methods for each building evaluated. Mr. Rand

**297. Group Process in Design.** Prerequisite: consent of instructor. The course aims to equip students with the 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. Mr. Adelson

**298. Social Meaning of Space.** Discussion, three hours. Traces the evolution of the concept of space from its origins in ritual and primitive social organizations. Concentrates on the child's evolving conception of space, literature on perceptual development, and studies of adaption to the spatial order of the human-made environment. Mr. Rand

**299. Application of Behavioral Research to the Design Process.** Lecture, three hours. Prerequisite: course 258 or consent of instructor. The course attempts to begin the difficult task of bridging the gap between research and design by building on the ideas and techniques generated in course 258, applying them to research in a field situation, and translating the results of this research into a preliminary design solution in a selected community. Emphasis on problem definition, the generation of meaningful research questions and understandable results, iterative approaches to the research/design interface, and novel ways of presenting design ideas. May be repeated for credit.

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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.** Laboratory, three 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. (F,W,Sp)

**402. Projects in Urban Design.** Laboratory, three 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. (F,W,Sp)

**403. Project Studio with Specific Topic (2 to 4 units).** Studio, eight hours. Prerequisites: prior courses of particular sequence or consent of instructor. May be repeated for credit.

**403A. Projects in Systems Building.**

**403B. Projects in Energy Conserving Design.**

**403C. Projects in Man-Environment Relations.**

**403D. Projects in Educational Facilities.**

**403E. Projects in Housing.**

**403F. Projects in History.**

**403G. Projects in Design Methodology.**

**403H. Projects in Computer-Aided Design.**

(F,W,Sp)

**411. Introductory Design Studio.** Studio, twelve 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, the student then undertakes a series of closely controlled exercises dealing with combining the elements. The latter part of the course is spent in the design of a small building in which previously acquired knowledge is synthesized into a single design. (F)

**412. Building Design Studio.** Studio, twelve hours. Prerequisite: course 411 or consent of instructor. The design of the project starts with the exploration of the architectural program in relation to the design process and, particularly, the implications of the program on architectural forms and concepts. In a second phase, structural elements are introduced to fulfill the program requirements and to support and further develop the intended forms and concepts. (W)

**413. Building Design with Landscape Studio.** Studio, twelve hours. Prerequisites: courses 411 and 412, or consent of instructor. Building design and site planning in relation to water, landforms, and plants in natural landscape, with special attention to natural light, heat, and ventilation. (Sp)

**414. Major Building Design I.** Studio, twelve hours. Prerequisite: second-year standing. 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, environmental controls, physical context, and the cultural environment in design of buildings and to present their ideas in graphic or model form. (F)

**415. Major Building Design II.** Studio, twelve 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 the cultural environment in design of buildings and to present their ideas in graphic or model form. Special emphasis on integration of environmental control systems. (W)

**416. Comprehensive Design Studio.** Studio, twelve hours. Prerequisites: completion of required coursework up to first quarter of third year and consent of instructor. Course completes the regular required sequence of design work, preparing students for the third-year thesis preparation course. Comprehensive design projects are structured to test students on integration of structural aspects, mechanical systems, site planning, and climatic considerations within their design solutions. (F)

**421. Architectural Drawing.** Discussion, three hours; laboratory, three hours. Description of architectural drawing techniques and skills, including sketching, diagramming, freehand drawing, drafting techniques, introduction to axonometric projection and perspective. (F)

**422. Advanced Architectural Drawing (2 to 4 units).** Discussion, three hours; laboratory, three hours. Prerequisite: course 421 or consent of instructor. The course continues with emphasis on the exploration of the interrelationship between drawing and design. More advanced design strategies and modes of graphic exploration and presentation are developed.

**431. Structures I.** Lecture, three hours. Prerequisites: basic algebra, geometry, trigonometry, and consent of instructor. Introduction to structural behavior and structural statics. Operations with forces and vectors, 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. Mr. Aroni, Mr. Iyengar (W)

**432. Structures II.** 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. Mr. Aroni, Mr. Iyengar (Sp)

**433. Structures III.** 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. Mr. Aroni, Mr. Iyengar (F)

**434. Structures IV.** 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. Mr. Aroni (W)

**436. Construction Documents.** Laboratory, eight hours. The course considers the relationship of the design processes from schematic design through the production of all of the documents for the construction contract. A simple structure is designed, and the design development is carried through working drawings and an outline form of specifications. (Sp)

**437. Building Construction.** Introduction to the first principles of structure and building construction. Building elements are not only explored for their structural qualities and possibilities of their production and assembly, but also for their formal and functional properties and, particularly, their application and role within a building. (W)

**438. Systems Building.** Prerequisite: consent of instructor. Discussion and survey of past and present developments in Europe, the U.S.S.R., and the U.S.A. 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.

**439. Methods in Building Systems Development.** Base for open building systems: reference system, component compatibility, measurement regulation, modular coordination. In-depth study of past and present research and developments, such as SCSD, SAR.

**441. Environmental Control Systems.** Lecture, three hours. Prerequisite: consent of instructor. The design of the mechanical systems necessary for the functioning of large buildings: air handling, fire and life safety, plumbing, vertical and horizontal circulation, communication and electrical power distribution, analysis of the interaction of these systems and their integrated effects on the architectural form of a building. Mr. Johnson (W)

**442. Building Climatology.** Lecture, three hours. Prerequisites: basic physics, completion of first year in M.Arch. I, consent of instructor. The design of buildings which specifically respond to the local climate; utilization of natural energies, human thermal comfort; sun motion and sun control devices; use of plant materials and landform to modify microclimate.

Mr. Givoni, Mr. Milne (Sp)

**443. Passively Integrated Solar Systems.** Prerequisites: course 442, consent of instructor. The course analyzes the different passively integrated solar systems for heating and cooling and considers their anticipated performance and suitability for different climates and building types. The course focuses on quantitative aspects, including calculations of performance in terms of energy saving and expected indoor comfort conditions. Mr. Givoni (Sp)

**444. Light and the Visual Environment.** Lecture, two to four hours. Prerequisite: course 432 or consent of instructor. Explores the extent to which the physical form of a building controls the luminous environment of its occupants; the design of naturally and artificially illuminated environments; parameters of human visual comfort. Mr. Milne

**445. Sound and the Auditory Environment.** Lecture, two to four hours. Prerequisite: course 432 or consent of instructor. Explores the extent to which the physical form of a building controls the acoustic environment of its occupants; the design of spaces for auditory privacy and for auditory enhancement; parameters of human audition.

**446. Introduction to Energy Conserving Design.** Prerequisite for M.Arch. I students: course 442 or equivalent; for others: consent of instructor. A professional practice-oriented view of introductory energy flow and thermal comfort concepts. Review of existing and developing Energy Conserving Design and Management "active" and "passive" techniques. Application of solar technology to architectural design within the ECD/M context. Explanation of historical as well as current and proposed energy/resource consuming, climate responsive buildings, and cities. May be repeated for credit. Mr. Schoen (F,W)

**460. Architectural Management.** Lecture, three hours. Problems of land development and real estate. The professions of architecture and planning: traditional and innovative organizational forms. Manufacture, distribution, transport, and on-site construction/assembly. Controls and resources: government programs and restrictions; financing and administration; costs estimation; materials and labor availability.

**461. Professional Organization and Practice.** Lecture, three hours. The profession of architecture: historical development, relation to other professions and disciplines, the changing role of the architect. Architecture and professional societies: the American Institute of Architects, state and national registration boards, educational accreditation. Legal and ethical questions relating to the practice of architecture. Emerging forms of architectural practice.

Mr. Phelps

**490. Urban Innovations Group Workshop (4 to 8 units).** Laboratory. Prerequisite: consent of workshop staff. Applied research and development work in the Urban Innovations Group workshop under the supervision of the workshop staff. Client-oriented projects concerned with significant urban, social, or technical problems of the physical environment. May be repeated for credit.

**496. Special Projects in Architecture (2 to 8 units).** Prerequisite: consent of instructor. Projects initiated by either individual students or student teams and directed by a member of the faculty. May be repeated for credit.

**497. Special Projects in Urban Design (2 to 8 units).** Prerequisite: consent of instructor. Projects initiated by either individual students or student teams and directed by a member of the faculty. May be repeated for credit.

**596A. Directed Individual Research and Study in Architecture and Urban Design (2 to 8 units).** May be repeated for credit.

**597A. Preparation for Ph.D. Qualifying Examination (2 to 8 units).** Prerequisite: doctoral standing. May be repeated for credit. S/U grading.

**598A. Preparation in Architecture/Urban Design for Master's Thesis (2 to 8 units).** Prerequisite: consent of instructor. May be repeated for credit.

**599A. Ph.D. Dissertation Research in Architecture (2 to 8 units).** Prerequisite: doctoral standing. May be repeated for credit. S/U grading.

## Urban Planning

1125J Architecture, 825-7331,  
825-8957

### Professors

Leland S. Burns, Ph.D.  
John Friedmann, Ph.D.  
Dolores Hayden, M.Arch.  
Peter Kamnitzer, M.P.I.  
Peter Marris, B.A.  
Donald Shoup, Ph.D.  
Edward W. Soja, Ph.D.  
Martin Wachs, Ph.D.

### Associate Professors

Leo Estrada, Ph.D.  
J. Eugene Grigsby, III, Ph.D.  
Allan Heskin, Ph.D., LL.B.  
Jacqueline Leavitt, Ph.D., *Acting*  
Robin Liggett, Ph.D.

### Assistant Professors

Margaret FitzSimmons, Ph.D.  
Rebecca Morales, M.A.  
Michael Storper, Ph.D.

### Lecturer

Berge Aran, Ph.D.

### Adjunct Associate Professor

Karen Hill Scott, Ed.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 Urban Planning Program. Graduates have taken positions in local, state, and national government, and increasingly with private companies whose products and services affect the urban environment. While most UCLA graduates find positions in the United States, 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 and articulated degree programs are available which enable students to combine study for an M.A. in Urban Planning with work toward an M.B.A. in the Graduate School of Management, a J.D. in the School of Law, or an M.A. in Latin American Studies.

The Urban Planning Program at UCLA 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. A number of student organizations provide an interesting program of extracurricular activities.

## Requirements for Graduate Degrees

### Admission

The Urban Planning Program admits students in the Fall Quarter only, and the application process should begin a year in advance of the quarter for which you are applying. Students 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 Admissions, Urban Planning Program, Graduate School of Architecture and Urban Planning, UCLA, Los Angeles, CA 90024.

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 are encouraged to submit GRE scores. The Test of English as a Foreign Language (TOEFL) is required of applicants whose native language is not English, unless they have completed at least two years of university-level coursework at an English language institution.

A maximum of two work samples may be submitted in support of the application (e.g., reports, papers, slides, etc.). If team reports are submitted, the applicant's individual contribution must be clearly indicated. Samples written in a foreign language cannot be considered. Work samples will be returned only on request. (Applicants in the U.S. must enclose a self-addressed, stamped envelope.)

### Areas of Concentration

You should select an area of concentration by the end of your first quarter in the program. The areas of concentration distinguish between different kinds of issues and contexts in which planners characteristically become engaged, as a professional career or a field of research. They are not meant to be mutually exclusive. The four areas of concentration are:

**Urban and Regional Development:** Rural poverty and urban migration, unemployment, the problems of economically depressed areas, and the deterioration of inner-city neighborhoods all present problems which call for comprehensive analysis and innovative solutions. Within this area, you are expected to select an emphasis either on developments within the United States and other advanced industrial nations, with a focus on community, or on problems of development in newly industrializing countries.

**Social Policy and Public Services:** This field of study concentrates on services, approaching questions of equity and social structure through the planning and analysis of services that are supplied publicly or semipublicly. It is concerned with the economic, political, and social context of service delivery systems, with analytic techniques for planning and evaluating them, and with the implications of different ways of financing them.

**Natural Environment and Resources:** 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, consequences which appear both as environmental hazards to human health and well-being and as problems in the management of natural resources. A special feature of this area of concentration is its emphasis on problems arising from the intensive use of environmental resources, viewed from the perspective of political economy.

**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 built environment and with the built environment on an urban scale. Within this area, you can select one of three specializations: history, theory, and criticism of the built environment; public policy and the built environment; or urban design and physical planning.

**Additional Areas of Concentration:** In special circumstances, you may devise your own area in consultation with appropriate faculty members. Final approval of the proposed additional area of concentration must be obtained from the program head.

**Comparative Development Studies:** If you wish to focus your studies on policy and planning problems of newly industrializing countries, you can 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.

In its four Area Studies Centers, UCLA has major institutional resources that facilitate research and furnish a rich environment in which to study development issues in a global context. Opportunities for work exist with international agencies, voluntary agencies, and foreign governments, and doctoral students in particular are encouraged to pursue careers in teaching, research, and consulting.

Students wishing to pursue comparative development studies at either the M.A. or Ph.D. level should contact Professor John Friedmann.

## Master of Arts in Architecture/Urban Planning

### Course Requirements

You must complete a minimum of 72 units. Students generally take 12 units per quarter, completing the program in two years.

**Core Course Requirement:** The core areas comprise knowledge common to all areas of planning, regardless of your specific focus. Seven core courses are required: Architecture and Urban Planning 207, 220A (waiver by examination), 220B, two core courses in theory and context, two additional courses (three if course 220A is waived) from a selection of 14 remaining core courses in methods, theory and context, and/or practice.

On entering the program, you must pass examinations indicating competence in basic mathematics and microeconomics before enrolling in courses 220A and 207 respectively. Copies of sample examinations will be mailed with admission offers 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.

You are strongly encouraged to prepare for the examinations before enrolling so you can take courses 207 and 220A during your first quarter of studies.

**Area Course Requirement:** You must select an area of concentration. A list of courses is prepared for each area of concentration, from which you are required to select at least five; two are generally specified.

Two field projects courses (eight units) are required (subject to waiver).

You are encouraged to seek waivers for requirements which have been met in your previous education.

### Thesis Plan

In partial fulfillment of the requirements for the M.A. degree, you are required to complete either a thesis or one of two comprehensive ex-

amination plans. The master's thesis is intended to provide the opportunity for independent scholarly research and should be the length and quality of a publishable journal article. If you select this option, in order to meet established deadlines, you are urged to begin thesis work no later than the Fall Quarter of the second year. Academic credit for thesis preparation is given through Architecture and Urban Planning 598P.

### Comprehensive Examination Plan

If you select the comprehensive examination option, you may choose either Plan A or Plan B.

**Plan A (Long-Term Project):** A client-oriented project is recommended for students who are more interested in practical application of what they have learned in their coursework than in scholarly research. The time span and magnitude of the final project approximates that of the thesis. Academic credit for project involvement is given through Architecture and Urban Planning 597P.

As an alternative under Plan A, you are encouraged to take courses 217A-217B (comprehensive project), offered each year, to fulfill the comprehensive examination requirement.

**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 constitutes a committee for offering, reading, and grading the examination. No course credit is received.

### Fieldwork

Master's students who come to the Graduate School of Architecture and Urban Planning without prior experience in planning are required to complete a minimum of eight units of fieldwork. Fieldwork is defined as some type of 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). Details on fulfilling this requirement are available from the program office.

## Cooperative Degree Programs

### J.D./M.A.-Architecture and Urban Planning

The School of Law and the Graduate School of Architecture and 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 schools and receive both the J.D. and M.A. degrees at the end of four years.

Students interested in the concurrent degree program must apply and be admitted to the School of Law, the Urban Planning Program, and the Graduate Division. For additional information, contact the graduate counselor in the Urban Planning Program.

### M.B.A./M.A.-Architecture and Urban Planning

The Graduate School of Management and the Graduate School of Architecture and Urban Planning 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.

Students should request all application materials from the M.B.A. Admissions Office, Graduate School of Management. Further details may be obtained from the graduate counselor in the Urban Planning Program.

### M.A.-Latin American Studies/ M.A.-Architecture and Urban Planning

The Latin American Studies Program and the Urban Planning Program offer a 2½- to 3-year articulated plan 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 articulated degree program provides an integrated curriculum through which students can develop professional knowledge and skills while receiving advanced area studies and language training.

Students should apply through the Urban Planning Program. Further details may be obtained from the graduate counselor in the Urban Planning Program.

## Ph.D. in Urban Planning

### Admission

Students admitted to the Ph.D. program in Urban Planning must have a master's degree in planning or a closely related field.

You must have a minimum 3.5 grade-point average in all graduate work completed for consideration for the Ph.D. program. Employment experience in planning or a closely related field is strongly recommended.



## Foreign Language Requirement

A foreign language is not required either for admission to or completion of the doctoral program. However, students who are expecting to do dissertation research abroad are strongly advised to obtain the necessary language skills prior to beginning such research.

## Course Requirements and Qualifying Examinations

You must demonstrate a high level of competence in an area of concentration (major field), a minor field, and in planning theory as measured by coursework and doctoral examinations. In addition, you must satisfy a requirement in research methods and are required to take Architecture and Urban Planning 208 to aid in preparation of dissertation research and writing.

## Planning Theory Requirement

Planning theory is concerned with the ideas which have influenced the way planning has been conceived in Europe and America since the beginning of the nineteenth century and with theoretical issues which planning raises.

You are required to take Architecture and Urban Planning 210A, 210B, and 210C and to present, at the end of your third quarter, an original research paper on a topic related to planning theory selected in consultation with faculty. The planning theory requirement should be completed in your first year in the program, prior to taking the major field examination.

## Research Methods Requirement

The research methods field covers a variety of techniques useful for collecting, organizing, processing, and analyzing information for planning decisions. The methods to be covered emphasize statistics and their application to urban and regional studies and planning. The statistical tools include probability theory, probability distribution, sampling, survey methods, estimation techniques, hypothesis testing, analysis of variance, correlation, regression, and factor analysis. You may also study methods which address research of a more qualitative nature, including ethnomethodology, historiography, and Marxist methodologies.

To fulfill the research methods requirement, you must complete a sequence of three methods courses beyond the introductory level with a grade of B or better. In order to meet a minimum requirement in statistics, one of the three courses must be Architecture and Urban Planning 220B or the equivalent. The courses must be approved by your adviser and should begin during your first year in the Ph.D. program.

## Major Field Examination

The major field examination is designed to test your knowledge and understanding of your major field. You are expected to demonstrate a level of competence equivalent to teaching a beginning course in that field and should be prepared to analyze and justify major policy options for the solution of those problems you define as being critical in the area covered by the examination. The examination has two parts (one written, one oral) and requires submission of an acceptable written statement of interest.

The major field examination is given once each quarter and is generally taken by the end of your second year of study. You may receive academic credit for the preparation of the examination by enrolling in Architecture and Urban Planning 597P.

## Minor Field Requirement

The minor field requirement is intended to provide a breadth of knowledge which extends beyond the specific area of the major field. This requirement is flexible and closely adjusted to your dissertation focus. It can be fulfilled by taking 12 units of coursework (1) which constitute a coordinated package of courses in the subject of the minor field, (2) which are in an area of concentration other than the major field and/or in another department (not necessarily in a single department), and (3) in which a grade of B or better must be received.

## Oral Qualifying Examination

After successful completion of the planning theory requirement, research methods requirement, and the major and minor field requirement, you may petition the Graduate Division for approval of your doctoral committee.

The doctoral committee administers the University Oral Qualifying Examination at which you defend your dissertation prospectus. To assist in the development of the proposal, you are required to complete Architecture and Urban Planning 208.

The University Oral Qualifying Examination will normally be taken by the end of your third year of doctoral study.

## Final Oral Examination

This examination, which is optional at the discretion of the doctoral committee, involves a defense of the completed dissertation.

## Upper Division Courses

**179. Variable Topics in Urban Planning (2 to 8 units).** Lecture, three hours. A 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 for Our Cities.** See listing under "Architecture/Urban Design."

**190. The Human Environment: An Introduction to Architecture and Urban Planning.** See listing under "Architecture/Urban Design." (F)

**M195. Engineering and Environmental Geology.** (Same as Earth and Space Sciences M139.) Lecture, two and one-half hours. Prerequisite: Earth and Space Sciences 1 or 100. Recommended: Earth and Space Sciences 111A. 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. Mr. Merifield (W)

**197. Planning for Minority Communities.** Lecture, three hours. The course introduces the student to inner-city policy issues on three separate levels: (1) each student develops a comprehensive inner-city urban program using materials from the Alternatives Inner-City Future Exercise, (2) each student is expected to identify the 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. Mr. Estrada

**199. Special Studies (2 to 8 units).** See listing under "Architecture/Urban Design."

## Graduate Courses

**M202A. Public Control of Land Development (3 to 4 units).** (Same as Law M286.) Analysis of the legal and administrative aspects of the regulation of land use and development, and the problems and techniques of urban planning; dwelling legislation, building codes, zoning, subdivision controls, public acquisition of land, tax controls, and urban development. Mr. McGee

**M202B. Governance: State, Regional, and Local (3 to 4 units).** (Same as Law M285.) Lecture, three hours. Legal problems involving local governmental entities; sources and extent of powers and duties with respect to personnel, finance, public works, community development, and related topics.

**M202C. Seminar: Urban Affairs (3 units).** (Same as Law M526.) Lecture, two hours. The purpose of the course is to explore in a concrete case setting the application of legal tools to the solution of planning and land-use problems. Real situations are selected in which significant planning problems exist that appear to be amenable to solution by careful analysis and application of legal tools. A number of case studies are selected so that students may choose one issue which directly interests them. For each case, a specific client works with the class in presenting the problem that client is facing and remains available through the course of the project for consultation; the end product for each case is the presentation of a formal report. Clients include the City Planning Commission, the Environmental Quality Board, the Housing Authority, and others.

**M205C. Urban Government.** (Same as Political Science CM229.) An analysis of the policies, processes, interrelations, and organization of governments in heavily populated areas.

**206. Urban Data Analysis.** The course reviews research methods integrated by a common planning theme. Among the methods covered are observational methods, data collection techniques (including survey methods), and the use of available data (i.e., census data, administrative data, etc.). Analytical techniques, such as index construction, standardization, and trend analysis, are also discussed. Each method/technique involves exercises by students. Generally taken in the first year.

Mr. Levine and the Staff

**207. Public Resource Allocation.** Lecture, three hours. Prerequisite: passing score on a microeconomics examination given the first day of class. The course emphasizes the practical use of economics in analyzing public resource allocation problems. Topics include a review of marginal analysis, the difference between equity and efficiency, public goods and the free rider problem, environmental pricing, public service pricing, and conflicts between individual and collective rationality. Mr. Shoup (F)

**208. Seminar in Advanced Research Methods.** (Formerly numbered 208A.) Lecture, three hours. Prerequisites: doctoral standing, consent of instructor. Required of Ph.D. students in or following the second year. The course begins the process of developing a dissertation proposal and introduces students to the alternative conceptions of science (or rigorous scholarship) now apparent in various social science paradigms. S/U grading. Ms. FitzSimmons (F)

**209. Special Topics in Planning Theory (2 to 8 units).** Lecture, three hours. Seminar on topics in planning theory selected by the faculty. May be repeated for credit.

**210A. A History of Planning Thought since 1800.** (Formerly numbered 201B.) Lecture, three hours. A historical introduction to the major ideals and theories of planning which have influenced its development from the early 19th century to the present. Mr. Friedmann (F)

**210B. Colloquium in Planning Theory.** (Formerly numbered 201C.) Lecture, one hour; discussion, two hours. Prerequisite: course 210A. Intended for Ph.D. students (M.A. students may enroll by departmental petition only). An introduction to some of the central theoretical issues of contemporary planning, such as the role of planning in the state, the nature of social learning, conceptions of space and time, the politics of spatial design, the ethics of forecasting. Designed to help students develop a topic for the research paper required in course 210C. In Progress grading (credit to be given only on completion of course 210C). (W)

**210C. Research Seminar in Planning Theory.** Discussion, three hours. Prerequisite: course 210B. Limited to Ph.D. students. A seminar to prepare Ph.D. students for their research paper in planning theory. Presentations by students and lectures and discussions on topics selected for research by the class. (Sp)

**211. Law and the Quality of Urban Life.** Lecture, three hours. The course is an introduction to law as an urban system and is directed primarily toward those interested in social and advocacy planning. The course is organized around a number of urban problems, such as employment, housing, social welfare, and land use, and examines the law's role as a partial cause and cure of these problems. Although certain legal principles are stressed, the course examines law as a changing process rather than a collection of principles. It is a goal of the course that students develop a facility to interact with law and lawyers in a positive and forceful manner. Mr. Heskin

**212. Uses of Forecasts in Policy-Making.** Alternative concepts of the future and their relationship to planning theory and practice; institutional requirements that forecasts be conducted by planners; the technical characteristics of forecasts themselves and the relationship between technical forecasting methods and assumptions about the future; case studies of the use of forecasting in policy-making drawn from a variety of sectors: transportation, housing, energy, and water supply; an examination of ethical dilemmas faced by forecasters in complex policy-making situations. Mr. Wachts

**213. Social Indicators and Reports for Metropolitan Regions.** Discussion, three hours. Prerequisite: second-year standing. Research seminar concerned with the development of social indicators for evaluating and reporting the performance of complex urban systems. Mr. Grigsby

**M215B. Spatial Statistics.** (Same as Geography M272.) Lecture, two hours; discussion, one hour; laboratory, one hour. Prerequisites: Geography 171 or Mathematics 50 and consent of instructor. Specific techniques useful in the analysis of spatial distributions, including both point and areal patterns and emphasizing spatial descriptive statistics, probability models of spatial distributions, and statistical surfaces. Mr. Clark

**217A-217B. Comprehensive Planning Project.** Prerequisite: second-year standing. The comprehensive project is offered by at least two faculty members representing different areas of policy concentration in the urban planning program and brings together students of varying backgrounds and interests in joint solution of a problem in urban planning and development. Each project is the equivalent of eight units total and spans two quarters. Because of the time required for the completion of project work, it is expected that students enrolled in a project will select the comprehensive examination plan option in place of the master's thesis. Credit to be given on completion of course 217B. (W, 217A; Sp, 217B)

**219. Special Topics in the Built Environment (2 to 8 units).** See listing under "Architecture/Urban Design."

**220A. Quantitative Analysis in Urban Planning I.** Lecture, three hours. Prerequisite: passing score on a basic mathematics proficiency examination given the first day of class. An introduction to mathematical and statistical concepts and methods with applications in urban planning. The course reviews basic mathematical concepts fundamental to planning methods and covers descriptive statistics, probability, and sampling techniques. The course also includes an introduction to the use of the computer as a tool in analysis of planning-related data. Ms. Liggett (F)

**220B. Quantitative Analysis in Urban Planning II.** Lecture, three hours. Prerequisite: course 220A or equivalent (demonstrated by passing score on mathematics proficiency examination given the first day of course 220A). An introduction to concepts of statistical inference and modeling, with emphasis on urban planning applications. Topics include hypothesis testing, analysis of variance, correlation, regression, and causal modeling. Applications include such planning problems as forecasting population growth and change, estimating the use and need for public facilities, and analyzing the changing social and economic characteristics of urban populations. Case studies are presented which cover the design and analysis of typical urban planning research projects. The course also includes use of the computer as a tool in statistical analysis and modeling. Ms. Liggett (W)

**221A. Evaluation Research.** Lecture, three hours. Prerequisites: courses 207 and 220A. The course focuses on the conceptual approach, methods, and problems encountered in conducting program evaluations. Topics include purposes of evaluations, steps involved in the evaluative process, and uses of evaluation research in planning. Case studies and exercises are used as teaching techniques along with lectures provided by the instructor. Mr. Shoup

**221B. Project Evaluation Methods.** Lecture, three hours. Prerequisite: course 207. The course examines ways of estimating the economic worth of public programs and investment projects. The major topics include cost/effectiveness analysis, cost/benefit analysis, sensitivity analysis, distribution analysis, and implementation. Mr. Shoup

**223A. Professional Development Series.** Lecture, three hours. A lecture-seminar-project course offering an introduction to the planning profession and, more specifically, to the Urban Planning Program at UCLA. An overview of the forces that shaped its practice over time and an exploration of various professional roles for planners. Planning education is viewed as a response to changing needs and as a catalyst for emerging roles for professional planners. Several short projects are designed to expose students to "real world" planning problems and to the various viewpoints and methods that the areas of concentration specialties would bring to bear. Course 223A is generally taken Fall Quarter of the first year as an introduction to course 223B. Mr. Heskin (F)

**223B. Professional Development Series.** Lecture, three hours. Highly recommended prerequisite: course 223A. The course is concerned with problems of professional practice. Students must be working in a field setting to enroll. A job fair is held at the beginning of Winter Quarter to place students in field settings. Students who wish to arrange their own placement and join the class may do so by consent of instructor. The course focuses on developing methods which integrate theory and practice through readings and individual and collective analyses of each student's experience. In addition, a larger look at the planning profession is provided by noted professionals brought to the classroom to dialogue with the students. Students combine course 223B with one quarter of course 490 or 496F to meet the fieldwork requirement. (W)

**226A. Computer Applications in Architecture and Urban Planning (Introductory).** See listing under "Architecture/Urban Design."

**226B. Computer Applications in Architecture and Urban Planning (Advanced).** See listing under "Architecture/Urban Design."

**229. Special Topics in Planning Methods (2 to 8 units).** Seminar on topics in planning methodology selected by the faculty. May be repeated for credit.

**M231. Urban Housing and Community Development (3 to 4 units).** (Same as Law M287.) Lecture, three hours; discussion, one hour. The course comprehensively considers the rebuilding and construction of American cities, with the major emphasis on the "housing process"—the way in which shelter and related facilities are created by the institutions which direct housing activities in urban areas. Students are encouraged to undertake research projects, with emphasis on field research, in lieu of a substantial portion of the final examination. Mr. McGee

**232A. Introduction to Regional Planning: The Evolution of Regional Planning Doctrines.** Lecture, three hours. A critical and historical survey of the evolution of regional planning theory and practice, with particular emphasis on the relations between regional planning and developments within Western social and political philosophy. Major concepts include regions and regionalism, the territorial community, and the social production of space. Mr. Friedmann, Mr. Soja

**232B. Spatial Planning: Regional and International Development.** An examination of the theory and practice of spatial planning at the regional, national, and international scales, including an evaluation of regional growth strategies, national settlement policy, growth center concepts, and the normative-ideological issues involved in international development planning. Generally taken in the first year. Mr. Soja

**233. The Political Economy of Urbanization.** An introduction to the basic concepts and analytical approaches of urban political economy, with major emphasis on American urban problems. Topics include the historical geography of urbanization, the development and transformation of urban spatial structure, suburbanization and metropolitan political fragmentation, urban fiscal crisis, and the role of urban social movements. Mr. Soja



**234. Seminar in Spatial Development Policy.** Prerequisite: course 232 or prior background in analytical human geography or consent of instructor. An advanced course dealing with the analysis, measurement, and interpretation of spatial change in developing countries, particularly in East and West Africa. It combines an in-depth examination of spatial development theory (especially with regard to spatial diffusion and settlement systems models), comparative studies in the geography of development, and a detailed assessment of some current African regional development plans. Generally taken in the second year. Mr. Soja

**235A-235B. Regional Approaches to National Development.** Prerequisite: consent of instructor. A two-quarter sequence dealing with questions of urbanization and rural development in industrializing Third World countries. Generally taken in the second year. Mr. Friedman

**236A. Urban and Regional Economic Development I.** Lecture, three hours. An introduction to basic principles of urban and regional economics as they bear on public policy formation and urban and regional planning, especially in the U.S. context. The course examines contemporary economic problems, theoretical frameworks for analyzing these problems, and methods of analysis. Major topics include regional distribution of employment/unemployment income and standards of living, with special attention to sectoral shifts in employment and demographic and migratory changes in the U.S. Emphasis on economic growth policies and development planning in cities and regions. Ms. Morales and the Staff (F)

**236B. Urban and Regional Economic Development II.** Lecture, three hours. A seminar focusing on local economic development, meaning job creation, job retention, or various forms of income redistribution for the purposes of developing or stabilizing a community's economy. Reasons for and measurement of unemployment and impoverishment, programmatic approaches for dealing with these problems, and a critical analysis of the objectives, outcomes, and public accountability of the different approaches are covered. Topics include labor market considerations in economic development planning; incentives to private enterprise investment; alternative institutions for local economic development; and financing public and private investment. Ms. Morales (W)

**236C. Urban and Regional Economic Development III.** Discussion, three hours. Prerequisite: course 236B. An advanced seminar for students wanting to design or critically evaluate programs in economic development. First part of course consists of two- to three-week intensive workshops on financing techniques and economic development law. Remainder of course is devoted to individual student projects. Ms. Morales (Sp)

**238. Advanced Seminar in Urban and Regional Development.** Lecture, two hours; discussion, two hours. Prerequisite: doctoral standing or consent of instructor. An 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).** Lecture, three hours. Seminar on topics in urban and regional development policy selected by the faculty. May be repeated for credit.

**241A. Urban Transportation Planning I.** (Formerly numbered M241A.) Lecture, three hours. Historical development of urban transportation planning and the current political and administrative frameworks for planning; the relationship between transportation systems and urban form, historical review of automobile and public transit systems; urban highway and transit planning programs; the financing of urban transportation; environmental and social impacts of transportation systems; current policy dilemmas; controlling the automobile, promoting mass transit, energy issues, needs of elderly and handicapped. Mr. Wachs (F)

**241B. Urban Transportation Planning II.** (Formerly numbered M241B.) Prerequisites: courses 207, 220B, and 241A, or consent of instructor. Economic and social basis for travel; basic data sources for examining urban travel and transportation; techniques of forecasting and analyzing travel; mathematical models of travel; trip generation, trip distribution, modal split, traffic assignment, and route choice; uses of forecasts and approaches to transportation system and project evaluation. Mr. Wachs (W)

**241C. Urban Transportation Planning III.** (Formerly numbered M241C.) Prerequisites: courses 207, 220B, 241A, and 241B, or consent of instructor. Recent experience and case studies in transportation planning and policy. Planning a rail system and downtown people mover for Los Angeles; community dial-a-ride services; express buses on freeways; the Santa Monica Freeway diamond lane project; decision making in the case of the Century Freeway; a parking management program for Los Angeles; carpooling and vanpooling programs; field trips and guest speakers. Mr. Wachs (Sp)

**244. Introduction to Housing Markets.** Prerequisite or corequisite: course 207 or equivalent. The 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 is emphasized, as well as their particular impacts on groups of the population. Topics include filtering, housing search, segregation, pricing, production efficiency, organization of the construction industry, market failure, and appropriate policy responses. Mr. Burns

**245. Finance of Local Public Services.** Lecture, three hours. Prerequisite: course 207 or consent of instructor. The course introduces the theory and practice of local public finance and provides experience on state and local fiscal planning issues. Some of the topics are fiscal impact analysis, public service distribution, local revenue sources, municipal bonds, pollution taxes, intergovernmental contracting, and tax incentives for historic preservation and economic development. Mr. Shoup

**246. Housing in Social and Economic Development Policy.** Lecture, three hours. Prerequisite: course 207 or equivalent or consent of instructor. Seminar on the position of housing in national and regional development strategies, with focus on policies for Third World nations. Topics include the nature of housing "need," market responses, evolution of housing policy, theory of intervention, alternative policies for increasing the housing supply. Numerous case studies. Mr. Burns

**249. Special Topics in Social Policy and Public Services (2 to 8 units).** Lecture, three hours. Seminar on topics in social policy and public services selected by the faculty. May be repeated for credit.

**251. Planning for Multiple Publics.** Lecture, three hours. Prerequisite: prior background in statistics and research design. Course is designed to explore the planning needs of various social groups in urban settings. Students are required to explore existing literature and research studies to determine appropriate mechanisms of planning for multiple publics. Students analyze communities in the Los Angeles metropolitan area as a means of gaining insights into the practical, theoretical, and methodological problems of planning for multiple publics. Generally taken in the first year. Mr. Grigsby

**252A. Human Lives in Development.** Lecture, three hours. The course covers the growth and development of the individual throughout the life cycle. Attention to four major schools of thought regarding human development, drawing implications to planning approaches. Emphasis on the psychosocial basis of individual development and its relationship to planning. Ms. Hill Scott

**252B. Social Policy in Human Development.** Prerequisite: course 252A or consent of instructor. The seminar examines the applications of human development information on the formulation of child care and family policy. Students are given the opportunity to examine how a wide variety of data on child development, family structure, female labor force participation, and the economics of public investments are used in developing policies regarding the organization and supply of child care services. Ms. Hill Scott

**253. Social Theory for Planners.** Lecture, three hours. Prior knowledge of sociological theory would be useful but is not essential. The course relates the sociological tradition to issues of change, the role of the state, and the relationship between knowledge and values as they affect planning. The course concentrates on insights and crucial issues which have arisen from social theory as they relate to the concerns of planning and social policy. Contemporary developments in urban sociology are also discussed. Mr. Marris

**254. Social Research Methods.** Lecture, three hours. Prerequisite: course 220B or equivalent. Course reviews basic methods commonly used in planning and applied social research and, in particular, survey research. Topics include conceptualizing the research problem; developing a research plan; sampling, instrumentation, and data collection; and time management of a research study. Mr. Estrada, Mr. Levine

**256. Social Impact Analysis.** Lecture, three hours. Prerequisite: consent of instructor. Recommended: courses 220A and 220B, a course in advanced statistics, a course in survey research and methodology. Limited enrollment. The course explores ways of creating methods for assessing and determining social impacts on communities. Intent is to develop both methodologies and policy formulation for assisting in community development. Generally taken in the second year. Mr. Grigsby

**260. Advanced Seminar on Natural Environment and Resources (2 to 4 units).** Discussion, three hours. Prerequisite: consent of instructor. Discussion and organized individual and group research. Exploration of broad issues related to environmental and resource planning. Generally intended for second-year M.A. students specializing in natural environment and resources and for Ph.D. students. May be repeated for credit.

**261A. Introduction to Environmental Analysis.** Lecture, three hours. Discussion of basic ecological principles relevant to environmental planning, including characteristics of ecosystems, energy transfer, biogeochemical cycles, dominance and niche theory, diversity and stability, species-area relations, etc. Emphasis on the human role in modifying ecosystems. Generally taken in the first year. Ms. FitzSimmons

**261B. Environmental Management: Politics and Institutions.** Lecture, three hours. Planners face some important dilemmas in designing institutions and policies intended to correct or prevent disruptions of the environment. The course is an introduction to these problems, focusing on the essential theoretical questions that must be addressed in attempts to control environmental problems in our society. Recent developments in environmental policy in light of the growing environmental movements are reviewed, and current approaches to environmental problems are evaluated, considering their institutional forms and epistemological foundations. Mr. Storper

**263. Natural Resource Conservation.** Lecture, three hours. The seminar explores, through presentations, readings, and discussion, the meaning of resource conservation, its desirability, and ways of achieving it. The focus is generally on minerals, although other resources (e.g., water, timber, wilderness) may be considered. Ms. FitzSimmons

**M264. Environmental Law and Policy (3 to 4 units).** (Same as Law M290.) Lecture, three hours. The course first examines, from perspectives meaningful to legal institutions, the nature of environmental problems. It then considers the means by which law has responded, and can and should respond, to problems of environmental quality. Both common law and legislative and administrative measures are considered. The course uses the air pollution problem as the primary vehicle for study.

**266. Seminar on Land-Use Planning.** Lecture, three hours. Prerequisite: consent of instructor. A seminar/discussion course that builds on the basic planning concepts and knowledge discussed in other planning courses. Topics include the current practice of land-use planning, issues and problems, land-use planning as a tool for environmental protection and enhancement, and evolving policy. Mr. Storper

**267. Site Planning.** Introduction to principles of site planning for urban areas, including new towns, new towns-in-town, shopping centers, industrial parks, office parks, housing, and recreation areas. Discussion of case studies in Southern California; exercises at the scale of the small city, the urban neighborhood, and the superblock. Mr. Kamnitzer

**269. Special Topics in Natural Environment and Resources (2 to 8 units).** Lecture, three hours. Seminar on topics in natural environment and resources selected by the faculty. May be repeated for credit.

**272. Real Estate Development for Planners and Architects.** See listing under "Architecture/Urban Design."

**274. Introduction to Physical Planning.** See listing under "Architecture/Urban Design."

**276. Planning Workshop (4 to 8 units).** Laboratory, six hours. Prerequisite: course 421 or 422 or Art 32A or demonstrated background in architectural design or consent of instructor. Planning projects with a focus on physical planning. Emphasis on synthesis combined with iterative evaluation of the emerging solutions. Projects may be reality bound, hypothetical, or in the form of exploring the impact of nonphysical forces on the physical environment. Development of presentation skills, both graphic and verbal, is an essential component of this workshop. Mr. Kamnitzer

**277. Introduction to Historic Preservation.** Lecture, two hours; discussion, one hour; one-day field trip. Following an explanation of the philosophy and history of the preservation movement, lectures focus on various aspects of historic preservation, such as current legislation, tax incentives for developers, preservation planning for cities, methods of recognizing significant buildings and of conducting a survey, adaptive reuse, citizen involvement from national to local levels, appropriate restoration techniques, structural reinforcement of masonry buildings, and social problems caused by preservation (such as gentrification and displacement).

**278. Research Methods in Human-Environment Relations (2 to 4 units).** See listing under "Architecture/Urban Design."

**281. Introduction to the History of the Built Environment in the United States.** Lecture, three hours. Open to advanced undergraduates by consent of instructor. An introduction to American urban, environmental, and architectural history, a survey of the main economic, political, social, and aesthetic forces forming the built environment. The course covers the Colonial period to the present, emphasizing the importance of the spatial design of cities and buildings to public policy. Ms. Hayden

**283. History of the American Household and the American Home.** Lecture, 90 minutes; discussion, 90 minutes. Prerequisite: course 281 or consent of instructor. An introduction to the history of housing design in the United States, emphasizing the changing roles of women and men from Colonial times to the present and the effects of these social changes on the physical form of the dwelling and the settlement. The concerns of professional architects and planners are discussed, as well as the activity of bankers, builders, and homemakers. Ms. Hayden

**284. The Ideal City in History.** Prerequisite: course 281 or consent of instructor. Since the time of Thomas More's *Utopia*, creating the ideal city has been a favorite device used by novelists, political theorists, economic and social critics, and architects to criticize existing society and demonstrate the dramatic possibilities of thoroughgoing reform. The seminar deals with the utopian tradition in its literary, political, and aesthetic forms, examining satirical cities, moral cities, and urban fantasies from the 16th century to the present.

Ms. Hayden

**285. Private Life, Public Life, and the Built Environment: Planning for the Changing Household and the Changing Work Force.** Lecture, 90 minutes; discussion, 90 minutes. An introduction to the substantial literature on the relationship between gender and urban experience. Alternative research strategies attempt to define a private/public urban split; to describe an inadequate fit between American households, housing, and services; and to document environmental inequities women and children face in contemporary cities. Students prepare seminar papers using one or more of these approaches to explore topics in the areas of housing, neighborhood development, transportation, or social services.

Ms. Hayden

**286. History of Specific Building Types.** See listing under "Architecture/Urban Design."

**287. Ancient and Islamic Architecture in the Mediterranean Area.** See listing under "Architecture/Urban Design."

**288. Architectural History: Medieval Period.** See listing under "Architecture/Urban Design."

**375. Teaching Apprentice Practicum (1 to 4 units).** See listing under "Architecture/Urban Design."

**490. Urban Innovations Group Workshop (4 to 8 units).** See listing under "Architecture/Urban Design."

**494. Supervised Independent Teaching (2 to 8 units).** Supervised individual teaching experience. May be repeated for credit. S/U grading.

**496F. Field Projects (2 to 8 units).** 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. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. S/U grading.

**596P. Research in Planning (2 to 8 units).** May be repeated for credit.

**597P. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examination (2 to 8 units).** May be repeated for credit. S/U grading.

**598P. Preparation for M.A. Thesis in Urban Planning (2 to 8 units).** May be repeated for credit. S/U grading.

**599P. Ph.D. Dissertation Research in Planning (2 to 8 units).** May be repeated for credit. S/U grading.

# Graduate School of Education

C. Wayne Gordon, Dean



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The primary goal of the Graduate School of Education is "the improvement of educational practice." In attainment of this goal, the functions of the school have expanded markedly in the past several decades to include a major commitment to educational research, to the advanced education of professional leaders and specialists, to the study and criticism of educational policy, and to field consultative services — all in addition to the traditional preparation of teachers. The professional studies appropriate for the school originate in the nature and management of learning, the maintenance and governance of educational institutions, and the discernment of educational purposes. There is concern for learning theory in its most important phases, for the entire realm of values as it pertains to the education of man, and for the nature and substance of education in this country as it compares with systems of education in other countries.

The UCLA Graduate School of Education, largest of its kind in the University of California system, provides a full range of academic and professional degree programs. Students may select from programmatic offerings consistent with individual goals and professional aspirations. At the master's degree level, professional Master of Education and academic Master of Arts programs are offered; at the doctoral level, qualified students may pursue the professional Doctor of Education or the academic Doctor of Philosophy degree. Additionally, several instructional and services credential sequences are available.



# Graduate School of Education

Office of Student Services:  
201 Moore Hall, 825-8325

## Professors

Marvin C. Alkin, Ed.D.  
Alexander W. Astin, Ph.D.  
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.  
Burton R. Clark, Ph.D., *Allan M. Cartter Professor of Higher Education*  
Arthur M. Cohen, Ph.D.  
Sol Cohen, Ph.D.  
Charlotte A. Crabtree, Ph.D.  
Aimee Dorr, Ph.D.  
Donald A. Erickson, Ph.D.  
Norma J. Feshbach, Ph.D.  
John I. Goodlad, Ph.D., L.H.D., LL.D.  
C. Wayne Gordon, Ph.D., *Dean*  
John N. Hawkins, Ph.D.  
Frank M. Hewett, Ph.D.  
Barbara K. Keogh, Ph.D.  
Frederick C. Kintzer, Ed.D.  
Marilyn H. Kourilsky, Ph.D.  
Thomas J. LaBelle, Ph.D.  
John D. McNeil, Ed.D.  
W. James Popham, Ed.D.  
Richard J. Shavelson, Ph.D.  
Harry F. Silberman, Ed.D.  
Rodney W. Skager, Ph.D.  
Lewis C. Solomon, Ph.D.  
A. Garth Sorenson, Ph.D.  
Louise L. Tyler, Ph.D.  
Carl Weinberg, Ed.D.  
Merlin C. Wittrock, Ph.D.

## Emeritus Professors

Melvin L. Barlow, Ed.D.  
Jesse A. Bond, Ed.D.  
Wilbur H. Dutton, Ed.D.  
Lawrence W. Erickson, Ed.D.  
Claude W. Fawcett, Ph.D.  
Clarence Fielstra, Ph.D.  
John A. Hockett, Ph.D.  
David F. Jackey, Ph.D.  
B. Lamar Johnson, Ph.D.  
Evan R. Keislar, Ph.D.  
George F. Kneller, Ph.D., Litt.D., LL.D., D.Sc.  
Dorothy M. Leahy, Ed.D.  
Erick L. Lindman, Ph.D.  
William H. Lucio, Ph.D.  
C. Robert Pace, Ph.D.  
Rosemary Park, Ph.D., LL.D., Litt.D., L.H.D.  
Paul H. Sheats, Ph.D., LL.D.  
Lorraine M. Sherer, Ed.D.  
Samuel J. Wanous, Ph.D.

## Associate Professors

Leigh Burstein, Ph.D.  
Frederick S. Ellett, Jr., Ph.D.  
Charles C. Healy, Ph.D.  
Antoinette Krupski, Ph.D.  
Bengt Muthen, Ph.D.  
David O'Shea, Ph.D.  
Val D. Rust, Ph.D.  
Geoffrey Saxe, Ph.D.  
Deborah J. Stipek, Ph.D.

Romeria Tidwell, Ph.D.  
James W. Trent, Ph.D.  
Noreen M. Webb, Ph.D.  
Richard C. Williams, Ph.D.  
Julia C. Wrigley, Ph.D.  
Watson Dickerman, Ph.D., *Emeritus*  
Simon González, Ed.D., *Emeritus*  
Wendell P. Jones, Ph.D., *Emeritus*  
Frances M. Obst, Ed.D., *Emeritus*

## Assistant Professors

James S. Catterall, Ph.D.  
David P. Ericson, Ph.D.  
Sandra Graham, Ph.D.  
Barbara Hecht, Ph.D.  
Carollee Howes, Ph.D.  
Harold G. Levine, Ph.D.  
Carol Mock, M.S., *Acting*  
Don T. Nakanishi, Ph.D.  
Laura M. Pope, J.D., Ed.D.  
Concepción Valadez, Ph.D.  
Wellford Wilms, Ph.D.

## Adjunct and Visiting Lecturers

Marjorie S. Day, Ph.D., *Adjunct*  
Philip Ender, Ph.D., *Adjunct*  
Madeline Hunter, Ed.D., *Visiting*  
Virginia Kennedy, Ph.D., *Visiting*  
Robert Lamborn, Ed.D., *Visiting*  
Ann Phelps, Ph.D., *Visiting*  
Burtis Taylor, Ed.D., *Visiting*

## Degrees Offered

Master of Education (M.Ed.)  
Master of Arts in Education  
Doctor of Education (Ed.D.)  
Doctor of Philosophy in Education

## Requirements for Graduate Degrees

### Admission

Qualifications for admission to a program of study in education, in addition to the University requirements for admission, are:

(1) A minimum total score of 1000 on the combined quantitative and verbal sections of the Graduate Record Examination. (Note: The Miller Analogies and Doppelt Mathematical Reasoning Test may be substituted for the Graduate Record Examination; minimum scores are 48 and 19 respectively.)

(2) Acceptance in a particular specialization is dependent on the availability of openings in that field; preference may be given to applicants with related backgrounds and/or experience.

Admission to an initial advanced degree program occurs simultaneously with admission to graduate standing and to the Graduate School of Education. No screening examination (other than described above) and no specific coursework are required for admission to a degree program.

Note: Applicants who do not meet the University minimum grade average and/or GRE score requirements may be admitted to the school on the basis of relevant work experience, accomplishments, or public service.

Letters of recommendation, while not required, may prove useful in documenting qualifications and/or professional experiences. The Graduate School of Education has an application form for both master's and doctoral degree programs which must be completed in addition to the one used by Graduate Admissions.

Application forms and departmental brochures are available from the Office of Student Services, Graduate School of Education, 201 Moore Hall, UCLA, Los Angeles, CA 90024.

## Major Fields or Subdisciplines

### Area I — Social and Philosophical Studies in Education

**Comparative and International Education** — 204A, 204B, 204C, 204D, 204E, 204F, 253A, 253B, 253C, 253D, 253E, 253F, 253G, 253H

**Education and the Social Sciences** — M108, 200B, 200C, 203, 207, 208A, 208B, M229A-M229B, 252A, 252B, 275, M281A-M281B-M281C

**Philosophy and History of Education** — 200A, M201C, 206A, 206B, 206C, 206D, 206E, 251A, 251C, 251D, 251E

### Area II — Educational Psychology

**Counseling** — 213A, 213B, 213C, 214A, 214B, 214D, 214E, 216, 257, 413A-413B-413C, 415A, 415B

**Early Childhood Development** — 217A, 217B, M217C, 217D, 217F, 256B, 261A, 421A, 421C, 421D, 421F, 421G

**Learning and Instruction** — 205, 212A, 212B, 212C, M215, 236, 237, 256A, 258A, 258B, 267, 418, 419A, 419B, 433A, 433B

**Research Methods and Evaluation** — 210A, 210B, 210C, 210D, 211A, 211B, 211C, 218A, 218B, 218C, 219, 221, M222A, 222B, 222C, 228, 230, 255, 411A, 411B, 411C, 460

**Special Education** — 125A, 125B, 225A, 225B, 226, 227A, 227B, 227C, 280A, 280B, 325A, 325B, 425, 501

### **Area III — Organizational and Administrative Studies in Education**

**Administrative and Policy Studies in Education** — 240A, 241, 242, 244, 246A, 246B, 440C, 442B, 443, 444A, 444B, 447, 448A, 448B, 470A, 470B

**Curriculum and the Study of Schooling** — 220A, 220B, 223, 224, 260, 261C, 262A, 262B, 262F, 262J, 420A, 420D, 422, 423, 424A, 424B, 424C, 424G, 437A, 490A

**Education and Work** — 214C, M231, 232, 233, 234, 235, 248, 261E, 262G, 262I, 337A, 337B, 437B

**Higher Education** — M148, 180, M197, 209A, 209B, 209C, 209D, 238, 239, 249A, 249B, 259A, 259B, 261D, 261F, 334, 430, 431A, 431B, 431C, 432, 461A, 461B, 461C

### **Teacher Education**

100A, 100B, M102, 112, 264, 312, 315A-315B, 316A-316B, 318A-318B, 320A-320B, 324A, 324B, 324C, 324D, 330A, 330B, 330C, 330D, 360, 481, 489, 491A, 492

### **Special Studies**

199, 299A-299B-299C, 375, 498A-498B-498C, 499A-499B-499C, 596, 597, 598, 599

Fields of specialization which may be selected in completion of the specific degree programs are indicated below. 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 field of specialization.

**Master of Education** — Administrative and policy studies in education; bilingual/cross-cultural education; curriculum and the study of schooling; teacher education.

**Master of Arts in Education** — Area I (education and the social sciences; philosophy of education); Area II (all specializations); Area III (education and work; higher education).

**Doctor of Education** — Area II (all specializations, except counseling); Area III (all specializations).

Note: No specializations in Area I are approved for major study in the Doctor of Education degree program. Since the Ed.D. program is oriented toward key concepts and issues in education, study will include specialized content in the selected field of specialization, as well as content from related specializations.

**Doctor of Philosophy in Education** — Areas I, II, III (all specializations).

## **Master of Education**

The Master of Education degree is a *professional* master's degree designed for individuals preparing for a mid-level professional position in schooling or for advanced graduate study; it is the appropriate degree to provide professional foundation study in preparation for the Ed.D. program.

### **Admission**

Requirements are applicable in accordance with selected specializations:

(1) *Administrative and Policy Studies in Education*: Possession of a valid teaching credential is preferred. Students with a demonstrated commitment to improving American schooling will be sought for admission.

(2) *Bilingual/Cross-Cultural Education*: Completion of an approved program of professional preparation leading to a preliminary teaching 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. (This M.Ed. specialization will not be offered in 1984-85.)

(3) *Curriculum and the Study of Schooling*: Persons with above-average capabilities and interest in curriculum and instruction will be sought. Experience as a practitioner in the specialization field is advantageous.

(4) *Teacher Education*: This is a four-quarter program leading to qualification for a Multiple or Single Subject Teaching Credential and a Master of Education degree. Individuals with the highest qualifications in all subject areas, including mathematics, science, and the humanities, will be sought. Experience in working with children is advantageous.

### **Course Requirements**

A minimum of nine upper division and graduate courses (36 units) is required, 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.

Information regarding specific course requirements in a selected M.Ed. specialization may be obtained from the Office of Student Services.

### **Teaching Experience**

For some M.Ed. specializations, teaching experience is required. Specific information may be obtained from the Office of Student Services.

## **Comprehensive Examination Plan**

There is no thesis plan offered in this program. Comprehensive examinations for master's degrees are offered twice yearly, once in Fall Quarter and once in Spring Quarter. They consist of:

(1) A comprehensive written examination designed to assess (a) comprehension of the professional knowledge basic to the selected field of specialization, including key concepts and principles, major theoretical positions, and fundamental issues and (b) understanding of the broad educational context in which the selected professional field resides.

(2) A performance examination designed to assess your competency in the solution of problems in the selected professional field; a test of whether knowledge can be applied in a real or simulated professional setting.

Information regarding examination foci for any selected M.Ed. specialization is available from your academic adviser.

The comprehensive examination may be taken twice. After a second failure, you will be allowed to continue in the Graduate School of Education only in highly unusual circumstances.

## **Master of Arts in Education**

The Master of Arts degree in Education is an *academic* master's degree designed to meet the needs of the individual preparing for a career in basic research or for advanced graduate study; it is the appropriate prerequisite education degree to the Ph.D. degree program.

### **Course Requirements**

A minimum of nine upper division and graduate courses (36 units) is required, although no specific upper division courses are necessary. Six courses (24 units) must be taken in the Education 200/500 series. A maximum of two 500-series courses (eight units) may be applied toward the divisional course minimum and toward the graduate course minimum.

Two courses must be selected from Education 200A, 200B, 210A, 210B. Additional courses to complete the 36-unit requirement may be selected from offerings in Education and/or other departments on consent of your assigned adviser.

### **Thesis Plan**

Under this plan, you will prepare a thesis which is a report of the results of original investigation. Before beginning work on the thesis, you must obtain approval of the subject and general plan from the Graduate School of Education and the chair of your thesis committee.

The thesis committee must be formed, and a Petition for Advancement to Candidacy for the Master of Arts must be filed no later than one quarter prior to completion of course requirements for the degree.

The Manuscript Adviser for Theses and Dissertations 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.

### Comprehensive Examination Plan

The comprehensive examination is concerned with central topics in the selected major area of study and field of specialization. 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, offered twice yearly in Fall and Spring Quarters, may be taken twice. After a second failure, you will be allowed to continue in the Graduate School of Education only in highly unusual circumstances.

## Doctor of Education

The Doctor of Education 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. Emphases include practice, applied studies, and knowledge-related professional skills.

### Admission

A Master of Education degree or equivalent is required; at least two years of successful professional experience in education or equivalent must be completed prior to advancement to candidacy.

### Course Requirements

The following items are required:

- (1) Major specialization study and additional coursework as specified by your adviser.
- (2) An approved minor sequence consisting of a minimum of three courses in a specialization other than the major field.
- (3) A minimum of three courses beyond the bachelor's degree in research methods or formal processes of inquiry. Such courses may be taken within or outside the Department of Education but must be approved as acceptable for the research methods requirement; at least two courses must be completed at this University.
- (4) A minimum of one approved breadth course, including a final examination, in each of three specified breadth categories. Breadth

courses must be outside both major specialization and minor.

- (5) A field experience minimally approximating a one-course requirement.

### Qualifying Examinations

After all coursework is completed (or when you have no more than one required course and one practicum in progress), you must complete the following qualifying examinations:

- (1) A written examination in the specialization concerned with key concepts and issues in the profession, which will draw from specialized content as well as from content of related specialization study. The examination is offered twice yearly, once in Fall Quarter and once in Spring Quarter, and may be taken a maximum of two times. After a second failure, you will be allowed to continue in the Graduate School of Education only in highly unusual circumstances.
- (2) A written examination (may be taken a maximum of two times) focusing on minor field content.
- (3) A professional competency performance examination, including demonstration of technical and artistic skills (e.g., may utilize simulated school setting or actual field setting to assess skills in decision making, interaction, information gathering, problem solving).
- (4) After you have completed all courses and professional experiences which are part of the program of study, the University Oral Qualifying Examination is conducted by the doctoral committee, employing topics from education which are related to the research proposal. In case of failure, the examination may be repeated once on the recommendation of your doctoral committee.

### Final Oral Examination

At the option of the certifying members of the doctoral committee, a final oral examination may be required.

## Ph.D. in Education

The Doctor of Philosophy degree in Education is an *academic* degree designed for individuals preparing for a career in basic research or college-level instruction. Emphases include theory, research methodology, basic studies, and in-depth knowledge in education and an approved cognate field.

### Admission

A master's degree or equivalent in either education or the cognate field in which you plan to work is required.

### Foreign Language Requirement

There is a foreign language requirement for the Ph.D. in some specializations. Detailed information is available from the graduate adviser in the Office of Student Services.

## Course Requirements

The following items are required:

- (1) Major specialization study and additional coursework as specified by your adviser.
- (2) An approved minor sequence consisting of a minimum of three courses in a specialization other than the major field.
- (3) A minimum of three courses beyond the bachelor's degree in research methods or formal processes of inquiry. Such courses may be taken within or outside the Department of Education but must be approved as acceptable for the research methods requirement; at least two courses must be completed at this University.
- (4) A minimum of one approved breadth course, including a final examination, in each of three specified breadth categories. Breadth courses must be outside both major specialization and minor.
- (5) A coherent program of at least five graduate courses (or equivalent) in an approved UCLA cognate department. The five courses will be determined by you and your academic adviser. (Note: Cognate courses in addition to the stated minimum may be required by your adviser.)
- (6) A research internship minimally approximating a one-course requirement.

### Qualifying Examinations

After all required coursework is completed (or when you have no more than one required course and one practicum in progress), you must complete the following written qualifying examinations:

- (1) A written examination (may be taken a maximum of two times) focusing on content derived from the major field of specialization.
- (2) A written examination (may be taken a maximum of two times) focusing on minor field content.

Note: For a doctoral degree, research methodology, breadth, and Ph.D. cognate field written examinations will be those given in connection with individual courses.

All courses and professional experiences which are part of the program of study must be completed before taking the University Oral Qualifying Examination. The examination is conducted by the doctoral committee, employing topics from both education and the cognate discipline which are related to the research proposal. In case of failure, the examination may be repeated once on the recommendation of your doctoral committee.

For further information on the written and oral qualifying examinations, contact the Office of Student Services.

## Final Oral Examination

At the option of the certifying members of the doctoral committee, a final oral examination may be required.

## 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 (126B Moore Hall) or the Chair of the Department of Special Education at CSULA.

## Cooperative Degree Programs

For details regarding either of the following cooperative degree programs, contact the Office of Student Services.

### J.D./Education Program

The Graduate School of Education and the School of Law 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 schools, students will be awarded both degrees on its completion.

### M.A.-Latin American Studies/ M.Ed.

The Graduate School 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 a specialization in curriculum. Articulated programs do not allow credit to be applied toward more than one degree.

## Certificate (Credential) Programs

The California Commission on Teacher Credentialing has authorized the Graduate School of Education to offer professional programs that lead to (1) the Multiple Subject Teaching Credential, (2) the Single Subject Teaching Credential, (3) the Bilingual Emphasis Teaching Credential, (4) the Administrative Services Credential, (5) the Pupil Personnel Services Credential, and (6) the School Psychologist Services Credential.

## Upper Division Courses

**100A. Cultural Foundations of Education (2 units).** Prerequisite: consent of instructor. Analysis of significant problems and issues in contemporary American education using historical, philosophical, sociological, and organizational perspectives. Examines the politics of schooling, the organizational structure of school systems, and philosophical concepts of the aims and functions of schooling and education. Mr. Gordon, Mr. Rust, Mr. Weinberg

**100B. Cross-Cultural Foundations of Education (2 units).** Prerequisite: consent of instructor. Analysis of significant problems and issues in the history, culture, and current affairs of particular ethnic minority groups in the United States. Patterns of intergroup and school-community relations and methods for teaching minority students. Includes field experiences. Mr. Solmon and the Staff

**M102. The Mexican-American and the Schools.** (Formerly numbered 102.) (Same as Chicano Studies M102.) Prerequisite: consent of instructor. Review of research and teaching strategies. Analysis of school policies and practices and their effect on the development of Mexican-American and Chicano youth and communities.

**M108. Sociology of Education.** (Same as Sociology M143.) Prerequisite: Sociology 1 or 101. Study of social processes and interaction patterns in educational organizations; the relationship of such organizations to aspects of society, social class, and power; social relations within the school, college, and university; formal and informal groups, subcultures in educational systems; roles of teachers, students, and administrators. Mr. O'Shea, Ms. Wrigley

**112. Psychological Foundations of Education.** Prerequisite: consent of instructor. Analysis of learning processes in school situations. Examines processes of human motivation, the affective, cognitive, social, and personal development of children and adolescents, the evaluation of learning, individual differences, and the implications of relevant theory and research for instructional practices. Ms. Graham, Ms. Kourilsky, Mr. Silberman

**125A. The Education of Exceptional Individuals.** Prerequisite: Psychology 10 or equivalent. An introduction to the field of special education, with emphasis on the psychology of individual differences and the learning characteristics of exceptional individuals and application of research and theory to special education problems. Mr. Hewett

**125B. Principles for Teaching Exceptional Individuals.** Prerequisite: consent of instructor. Examines approaches for teaching exceptional individuals in special and regular education programs. Principles and assumptions underlying alternative approaches. Emphasis on individualizing curriculum and classroom management. Observation in schools.

**M148. Women in Higher Education.** (Same as Women's Studies M148.) Prerequisite: upper division standing. The course examines the education and career development of women in higher education. Specifically, it focuses 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. Ms. Astin

**180. Social Psychology of Higher Education.** An overview of significant studies in the social psychology of higher education. Focusing on institutional characteristics and students' interpersonal and intrapersonal processes, special emphasis on identifying and explaining the effects of the college experience on student development and achievement. Mr. Trent

**M197. Senior Seminar in Women's Studies.** (Same as Women's Studies M197.) Discussion, three hours; laboratory, one hour. Prerequisites: Women's Studies 100 plus 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 a specific topic concerning women, explores frameworks for understanding female experience (biological, economic, historical, and psychological), and refines methods for research. Fulfills Letters and Science social science or humanities breadth requirement. Ms. Astin

**199. Special Studies (2 to 8 units).** Prerequisites: senior standing and consent of instructor. Independent study of individual problems.

## Graduate Courses

**200A. Historical Research and Writing.** Techniques of historical research and writing for students who are or who will be engaged in research and report or paper or thesis writing, regardless of their field of interest. Mr. S. Cohen

**200B. Survey Research Methods in Education.** Prerequisite: course 210A or equivalent. Problems of conceptualization, organization, and gathering non-experimental and quasi-experimental quantitative and qualitative data. Mr. O'Shea

**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. Mr. O'Shea

**M201C. History of American Education.** (Same as History M264.) The aim is to depict the intellectual and social forces impinging on American education from the 1860s to the present and to analyze the relation between these forces and the values, curriculum, structural organization, and functions of education. Mr. S. Cohen

**203. Educational Anthropology.** Recommended prerequisite: Anthropology 22. Study of education through the 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. Mr. LaBelle

**204A. Topics and Issues in International and Comparative Education.** Analysis of basic topics and issues in comparative and international education. Emphasis on those topics and issues that cut across national boundaries and are at the forefront of educational policy and practice in both developed and developing nations. Mr. Hawkins, Mr. LaBelle, Mr. Rust

**204B. Introduction to Comparative Education.** An examination of conceptual and methodological questions underlying comparative education. Particular attention to the development of the field and to styles of social analysis which may be applied to comparative and cross-national studies in education. Mr. Hawkins, Mr. Nakanishi, Mr. Rust

**204C. Education and National Development.** Application of social science perspectives and methodologies to education in the international context. Emphasis on relevant research literature and development processes and strategies for international development education, with concentration on so-called less developed countries. Mr. Hawkins and the Staff

**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. Mr. Hawkins, Mr. LaBelle, Mr. Nakanishi

**204E. International Efforts in Education.** Analysis of problems and concepts related to diffusion, borrowing, and adaptation across cultural and national boundaries. Activities of bilateral and multilateral agencies in promoting international education are examined, as well as conceptual and practical curricular efforts which intend to increase international understanding. Mr. Hawkins and the Staff

**204F. Nonformal Education in Comparative Perspective.** A 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. Mr. Hawkins, Mr. LaBelle, Mr. Rust

**205. Computers in the Educational Process.** Introduction to the theory, experimentation, evaluation, and future of computer systems in education, with emphasis on computer-assisted instruction (CAI), computer-managed instruction (CMI), and the use of computers by educational administrators for scheduling, student records, and student performance assessment. Ms. Dorr

**206A. Philosophy of Education: Introduction.** Systematic introduction to the field, indicating ways in which philosophy serves to elucidate educational aims, content, methods, and values. Mr. Ellett, Mr. Weinberg

**206B. Philosophy of Education: Existentialism and Humanism.** Examination of existentialist ideas and their application in contemporary humanistic movements in school and society. Mr. Ellett, Mr. Weinberg

**206C. Philosophy of Education: Logic and Language.** Conceptual analysis of recurrent and contemporary themes in the field. Emphasis on the development of logical and linguistic skills used in the analysis of educational problems and issues. Mr. Ellett, Mr. Weinberg

**206D. Philosophy of Education: Ethics and Values.** A study of ethics and value theory in teaching and learning, educational organization and policy, and curriculum design and validation. Mr. Ellett

**206E. Philosophy of Education: Introduction to Humanism in Education.** Examines the philosophical foundations of humanism and their relationships to educational theory and practice. Mr. Weinberg

**207. Politics and Education.** Course explores the political dimensions of both formal and nonformal educational enterprises in a national and international perspective. Political theory is explored in the context of such educational issues as policy formation, pressure groups, and public and private elites. Mr. Hawkins and the Staff

**208A. Perspectives on the Sociology of Education.** Designed to introduce students to sociological perspectives on current issues in educational policy and practice. Issues include desegregation, decentralization, equality of educational opportunity, structure of educational organization, teacher-student relationships, reform in education at the elementary, secondary, postsecondary levels. Mr. Gordon, Mr. O'Shea, Ms. Wrigley

**208B. Issues in Education: Sociological Perspectives.** Prerequisite: course 208A or equivalent. Exploration of educational issues and the structure and processes of formal schooling, from sociological perspectives such as functionalism, conflict theory, symbolic interactionism, ethnomethodology, and critical sociology. Mr. O'Shea

**209A. History of Higher Education.** An examination of the development of postsecondary education in the United States, with attention to the social context and to the scope and variety of institutions. Mr. Astin, Mr. A. Cohen, Ms. Mock

**209B. Issues in Higher Education.** Identification, analysis, and discussion of current issues, innovations, trends, and policies in postsecondary education. Mr. Clark, Mr. A. Cohen, Mr. Kintzer

**209C. Problems in Research and Evaluation in Higher Education.** A critical review of research and evaluation studies of higher education, with special attention to the need for studies of new programs and problems and to the design and methodology of evaluative research. Mr. Astin, Ms. Mock

**209D. The System of Higher Education.** An analysis of the structure and function of American post-secondary education from a systems perspective. Emphasis on the structure of the system and comparative characteristics (faculties, student bodies, finances, outputs) of different types of institutions. Mr. Astin, Mr. Clark

**210A. Basic Concepts in Educational Research.** Fundamentals of research design. The language of research. Planning and conduct of research. Interpretation and reporting of research outcomes. Introduction to descriptive statistics: mean, median, mode, variance. Introduction to the normal curve. Mr. Levine, Mr. Skager, and the Staff

**210B. Experimental Design in Educational Research.** 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. Mr. Shavelson, Mr. Skager, Ms. Webb

**210C. Experimental Design: Advanced Topics.** 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. Mr. Shavelson, Ms. Webb, and the Staff

**210D. Experimental Design: 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. Mr. Muthen, Ms. Webb, and the Staff

**211A. The Measurement of Educational Achievement and Aptitude.** Prerequisite: course 210A. A critical study of tests of achievement and aptitude, with emphasis on group tests; the relation of achievement to aptitude; social implications of the measurement of intelligence; elements of validity and reliability. Mr. Popham, Mr. Skager

**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. Mr. Burstein, Mr. Shavelson, Ms. Webb

**211C. Problems in Measurement.** Prerequisites: courses 210C and 211B, or equivalent. Generalizability theory and other statistical theories of mental test scores; implications for the design and interpretation of generalizability and decision studies; advanced topics in validity. Mr. Muthen, Mr. Shavelson, Ms. Webb

**212A. Learning and Education.** Models of learning, modeling, reinforcement, motivation, encoding, memory, transfer, individual differences, and instruction. Ms. Graham, Mr. Silberman, Mr. Wittrock

**212B. Motivation and Affect in the Educative Process.** Prerequisites: courses 210A and 212A. A review of the theoretical and empirical literature on motivational factors in school settings and the conditions for the acquisition of affective outcomes. Ms. Graham

**212C. Cognition and Creativity in Education.** Prerequisite: course 212B. A review of the theoretical and empirical literature on cognitive processes in school learning, including concept learning, problem solving, learning to learn, and creativity. Mr. Wittrock

**213A. Fundamentals of Student Personnel Work.** Prerequisite: graduate standing or consent of instructor. Analysis and in-class application of student and pupil personnel service methods, with emphasis on task groups and evaluation. Mr. Healy, Mr. Sorenson

**213B. Legal and Ethical Bases of Student Personnel Work.** Prerequisite: course 213A. Ethical and legal codes relevant to pupil personnel services; relation of value systems and personality; case studies in the implications of personal values in counseling situations. Mr. Berry, Mr. Sorenson

**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 the effect of behavior changes in individuals and groups. Evaluation of the social, psychological, and educational principles related to the therapeutic experiences of individuals in small groups. Mr. Berry

**214A. Counseling Theory and Practice.** Application of concepts drawn from cognitive psychology to the nonacademic problems which people encounter in everyday life, such as finding suitable employment, achieving satisfying interpersonal relationships, and making productive use of leisure time. Mr. Sorenson

**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. Mr. Sorenson

**214C. Principles of Career Planning.** Examination of the nature of careers across ages and ethnic and sexual groups in order to determine implications for career planning in postindustrial society. Mr. Healy

**214D. Vocational Guidance.** Depth study of current interests and needs in vocational guidance; principles, problems, and practices of vocational guidance. Mr. Berry, Mr. Healy

**214E. Chemical Dependency in Contemporary Society.** Extent and variety of substance abuse and dependency in schools and wider society. Relevant theory, including predisposing factors, effects on users and significant others, and recovery process. Critical indicators of substance dependency in the counseling interview. Prevention education and intervention strategies for youths and adults. Mr. Skager

**M215. Personality, Motivation, and Attribution.** (Same as Psychology M239.) Examines 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 also are stressed.

**216. Counseling Models from a Cross-Cultural Perspective.** Prerequisite: course 213A or consent of instructor. Research related to the psychological, educational, and sociological characteristics of counseling clients within a cross-cultural perspective and the implications for counseling models. Evaluation of counseling practices through an analysis of school, community, and mental health settings is systematically covered. Mr. Berry

**217A. Social Development and Education.** Biological and familial, school, and other influences on the child; development in the 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. Ms. Howes

**217B. Cognitive Development and Education.** Lecture, two hours; discussion, two hours. Prerequisite: graduate standing. A critical review of theories and research in cognitive development, focusing on the work of Piaget, Vygotsky, and prominent information processing theorists, and the relation of this work to issues in educational practice.

Mr. Saxe, Ms. Stipek

**M217C. Personality Development and Education.** (Same as Psychology M245.) A review of research and theory of critical content areas in personality development that bear on school performance: self-concept, aggression, sex differences, empathy, and other social behaviors; review of the status of emotional behavior in personality theory and development.

Ms. Feshbach

**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.

Ms. Valadez

**217F. Human Development and the Educational Process.** Learning and cognitive-developmental theories of human development and learning; cultural, family, and schooling influences on human development; application of developmental theory and research to educational practice.

Ms. Howes, Mr. Saxe, Ms. Stipek

**218A. Multiple Regression Analysis.** Prerequisite: course 210B. Regression-based techniques for analyzing quantitative data; multiple regression methods, multiple correlation, partial correlation; introduction to the general linear model, with direct application to educational inquiry.

Mr. Burstein, Ms. Webb

**218B. Advanced Quantitative Models in Non-experimental Research.** Prerequisites: course 218A or equivalent and consent of instructor. Quasi-experimental research designs, longitudinal models, introduction to causal models, path analysis, recursive and nonrecursive model estimation. Emphasis on conceptual and methodological foundations, assumptions, applications, and limitations.

Mr. Burstein, Mr. Muthen

**218C. Structural Equation Modeling.** Prerequisites: courses 210D, 218B, or equivalent. Extends path analysis (causal modeling) by considering models with measurement errors and multiple indicators of latent variables. Covers the LISREL approach, including confirmatory factor analysis, covariance structure modeling, and multiple-group analysis. Treats identification, estimation, testing, and model building considerations.

Mr. Muthen

**219. Laboratory: Advanced Topics in Research Methodology.** Provides assistance in the design of research and interpretation of data to advanced students from other specializations. Coverage of special topics not included in other courses on research methods.

Mr. Burstein, Mr. Shavelson, Ms. Webb

**220A. Inquiry into Schooling: Organization and Change.** Critical analysis of issues in the reconstruction of schooling; concepts of function and structure of schooling; organization theory; systems approaches in the analysis of organization development and change.

Ms. Crabtree, Mr. Goodlad, Ms. Tyler

**220B. Inquiry into Schooling: Curricular Problems.** Inquiry into the curriculum of schooling. Critical analysis of the relationship of curricular decision making to social system and contextual variables.

Ms. Crabtree, Mr. Goodlad, Ms. Tyler

**221. Computer Analyses of Empirical Data in Education.** Lecture, two hours; laboratory, two hours. Prerequisite: course 210A or equivalent. A course 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.

Mr. Astin

**M222A. A Laboratory for Naturalistic Observations: Developing Skills and Techniques.** (Formerly numbered M222.) (Same as Anthropology M236Q and Psychiatry M235.) Lecture, three hours. Prerequisite: consent of instructor. The skill of observing and recording behavior in natural settings is taught, emphasizing field training and practice in observing behavior. Some of the uses of observations and their implications for research in the social sciences are also discussed. Students are expected to integrate observational work into their current research interests. May be repeated for credit.

Mr. Gallimore, Mr. Turner, Mr. Weisner

**222B. Design Issues in Naturalistic Research.** Prerequisite: course M222A or consent of instructor. Issues in the 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.

Mr. Levine

**222C. Qualitative Data Reduction and Analysis.** 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 process-product statements, and specific analytic perspectives. Interfacing qualitative and quantitative data is also emphasized.

Mr. Levine

**223. Aesthetics and the Curriculum.** Lecture, two hours; discussion, two hours. An examination of various ideas and theories in aesthetics and the application of these in schooling contexts.

Mr. Weinberg

**224. Problems and Issues in Bilingual and Multicultural Education.** Introduction to the development and implementation of bilingual and multicultural programs in the U.S. Analysis of program goals, models, typologies, and effectiveness.

Ms. Valadez

**225A. Issues in the 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.

Ms. Hecht, Ms. Krupski, and the Staff

**225B. Advanced Issues in the Education of Exceptional Individuals.** Prerequisite: consent of instructor. Provides a synthesis of developmental and educational theory relevant to the study of exceptional individuals. The course also includes consideration of the historical context of current research and applied issues in special education.

Ms. Keogh

**226. Research in the Education of Learning Handicapped Individuals.** Prerequisite: course 225A or consent of instructor. Research on the education of individuals with learning handicaps, with emphasis on assessment and instructional modifications.

**227A. Research on the Learning Characteristics of Exceptional Individuals.** Prerequisite: course 225B. An overview of research and theory regarding learning characteristics of exceptional individuals and discussion of the application of this work to educational practice.

Ms. Krupski

**227B. Research on the Cognitive and Language Characteristics of Exceptional Individuals.** Prerequisite: course 227A. Review of the empirical and theoretical literature regarding the language and cognitive development of exceptional individuals; focus on intervention programs developing language and cognition.

Ms. Hecht

**227C. Research on the Behavioral and Social Characteristics of Exceptional Individuals.** Prerequisite: course 227B. Analysis of social and emotional development of exceptional individuals and the development of social competence in special education programs.

Mr. Hewett

**228. Methodology of Longitudinal Studies.** Lecture, two hours; discussion, two hours. Prerequisites: course 210A or equivalent and consent of instructor. An examination of some of the nonstatistical methodological issues in conducting longitudinal studies and interpreting their results. Questions related to data interpretation are a central focus. The range of questions that might be answered and conclusions that might be drawn which are specifically related to influences on children's development are also considered.

Mr. Blurton Jones

**M229A-M229B. Seminar in Behavioral Biology.** (Same as Anthropology M228A-M228B, Biology M252A-M252B, Physiology M252A-M252B, Psychiatry M291A-M291B, and Psychology M230A-M230B.) Discussion, six hours. Prerequisite: consent of instructor. Basic seminar for graduates interested in behavioral biology. An interdisciplinary course dealing with behavioral research in anthropology, biology, psychology, and the medical sciences. Proximate causation, development, and evolution in animal behavior. Physiology and the organization of behavior. Vertebrate social organization. Animal communication. The application of natural selection theory to human social behavior. In Progress grading.

**230. Criterion-Referenced Measurement.** (Formerly numbered 410.) An introduction to the field of criterion-referenced measurement insofar as this assessment strategy applies to research, development, and evaluation.

Ms. Baker, Mr. Popham

**M231. The Structure of Occupations.** (Same as Sociology M231.) Lecture, two hours; discussion, two hours. Explores shifts in the occupational structure of the United States, changing skill requirements for jobs, the effects of automation on work environments, and the role of formal and informal education in preparing people for occupations.

Mr. O'Shea, Ms. Wrigley

**232. Industrialism, Work, and Education.** Study of the relationship between education and the making of a working class in the new urban industrial America, 1860 to the present.

Mr. S. Cohen

**233. American Values in the Development of Vocational Education.** Course traces social values that supported early vocational education, reviews relevant research, and analyzes potential future directions for vocational education.

Mr. Wilms

**234. Education and Social Stratification.** Addresses the relationship between education and components of social stratification, including occupations and earnings. Explores competing theories used in studying education and social stratification and analyzes relevant research. Conclusions are drawn regarding individual career decisions, social policies, and theories of society.

Mr. O'Shea, Ms. Wrigley

**235. Education and Work.** A review of the theoretical and empirical literature on issues concerning the interface of education and work. A review of alternatives in the school-to-work transition of youth and an appraisal of present vocational training and manpower development programs.

Mr. Silberman

**236. Human Abilities.** Prerequisite: course 210B or equivalent. The 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.

Ms. Webb

**237. Principles for Effective Media.** Prerequisites: courses 205, 210A, and 212A, or consent of instructor. Elucidation of theoretical principles underlying effective media content and media utilization. Consideration of particular differences among print, computers, and audiovisual media, in and out of school. Role of research in development of such materials.

Ms. Baker, Ms. Dorr

**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.

Mr. Clark



**239. The Organization and Governance of Educational Systems.** Academic organizations, precollegiate and postsecondary, are most appropriately studied as complex, professionalized organizations. The course provides a basic understanding of the characteristics of educational institutions and systems as organizations: environmental relations, governance structures and processes, and patterns of decision making. Ms. Mock

**240A. School Administrative Practices since 1900.** An examination of school administration since 1900 as it has responded to social, political, and economic pressures exerted on schools. Development of sensitivity to current pressures and alternatives for administrative response. Mr. Williams

**241. Research Methodology in School Administration.** Prerequisite: consent of instructor. Examination of research problems and strategies in school administration.

Mr. Erickson, Mr. Williams, and the Staff

**242. Economic Analysis for Educational Policy and Planning.** Prerequisite: graduate standing. An 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). Mr. Bruno

**244. Economics of Education.** An introductory course in microeconomic and macroeconomic techniques applied to education. Methodologies such as marginal analysis, linear programming, Leontief I-O models, and Lorenz curve analysis are discussed, with application to school finance, underdeveloped countries, equality of educational opportunity, and credentialing. Mr. Bruno, Mr. Solmon

**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. A mathematical review and instruction in the use of the MPS (Mathematical Programming System) and development of software for Monte Carlo computer simulation studies in education. Mr. Bruno

**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. Mr. Bruno

**248. Perspectives on Lifelong Learning.** From an interdisciplinary perspective, lifelong learning is studied theoretically and as an area of educational research, policy, and practice. Conceptual distinctions are drawn among the major proponents of lifelong learning, and implications for schooling are considered.

**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 the design, methodology, and interpretation of large-scale evaluation studies. Mr. Astin

**249B. Seminar: Institutional Research and Program Evaluation.** Critical review of institutional evaluation studies, with consideration of the scope of information needed for various purposes and the problems of interrelating this information to appraise overall institutional functioning and effectiveness. Mr. Trent

**251A. Seminar: Philosophy of Education, Epistemology.** Prerequisite: consent of instructor. Mr. Weinberg

**251C. Seminar: Philosophy of Education, Behavioral Science Problems — Methodological Perspectives.** Prerequisite: course 206C or consent of instructor. Mr. Ellett, Mr. Weinberg

**251D. Seminar: Philosophy of Education, Problems in Ethics and Values.** Prerequisite: course 206D or consent of instructor. Mr. Ellett

**251E. Seminar: Philosophy of Education, Selected Issues.**

**252A. Seminar: Educational Organizations.** Prerequisite: course 208A or consent of instructor. Mr. Gordon, Mr. O'Shea, Ms. Wrigley

**252B. Seminar: Education and Social Change.** Prerequisite: course 208A or consent of instructor. Mr. LaBelle, Mr. O'Shea

**253A. Seminar: Current Problems in Comparative Education.**

**253B. Seminar: African Education.**

**253C. Seminar: Asian Education.** Mr. Hawkins

**253D. Seminar: Latin American Education.** Mr. LaBelle

**253E. Seminar: European Education.** Mr. Rust

**253F. Seminar: Education in Revolutionary Societies.** A multidisciplinary and comparative study of socialist educational theory is examined through the writings of Marx, Lenin, Mao, and others. The implementation of this theory in specific case studies, along with comparative assessments of nonsocialist nations is explored.

Mr. Hawkins, Mr. LaBelle, Mr. Rust

**253G. Seminar: The Asian American and Education.** Basic issues and topics related to Asian Americans in the field of education. Examples of the issues and topics are Asian Americans and the community, socioeconomic status, the education-to-work transition, the language and culture question.

Mr. Nakanishi

**253H. Seminar: The Chicano/Hispanic and Education.** Basic issues and topics related to the Chicano and other Hispanic groups in education. Reviews 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).

**255. Seminar: Special Topics in Measurement and Research Design.** Prerequisites: courses 210C and 211C, or consent of instructor.

**256A. Seminar: Special Topics in School Learning.** Prerequisite: consent of instructor.

Ms. Graham, Mr. Wittrock

**256B. Seminar: Special Topics in Development.** Prerequisite: consent of instructor.

**257. Seminar: Pupil Personnel Services.** Prerequisite: consent of instructor.

Mr. Berry, Mr. Healy, Ms. Tidwell

**258A. Seminar: Problems in Instructional Research.** Mr. Wittrock

**258B. Seminar: Problems in Instructional Development.** Ms. Baker, Ms. Dorr, Mr. Levine

**259A. Seminar: Research on Characteristics of Students.** Mr. Trent

**259B. Seminar: Research on Characteristics of Educational Environments.**

**260. Seminar: Principles of Curriculum and Instruction.** Mr. Goodlad, Mr. McNeil, Ms. Tyler

**261A. Seminar: Early Childhood Education.** Prerequisite: course 421A.

**261C. Seminar: Secondary Education.** Mr. McNeil, Mr. Silberman

**261D. Seminar: The Community College.** Mr. A. Cohen, Mr. Kintzer

**261E. Seminar: Education and Work.** Mr. Silberman and the Staff

**261F. Seminar: Higher Education.** Mr. Kintzer, Mr. Trent

**262A. Seminar: The Social Studies.**

Ms. Crabtree

**262B. Seminar: Reading.** Mr. McNeil

**262F. Seminar: Research Topics in Bilingual/Multicultural Education.** Prerequisite: consent of instructor. Ms. Valadez

**262G. Seminar: Business Education.**

**262I. Seminar: Contemporary Issues in Education and Work.** Mr. Wilms

**262J. Seminar: Economic Education.**

Ms. Kourilsky

**264. Seminar: Teacher Education.** Prerequisite: consent of instructor. Examines 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 are studied. Opportunities to observe, participate in, and discuss teacher education programs are provided.

**267. Seminar: Educational Technology.** Prerequisite: course 433A. Recommended: course 433B.

Ms. Baker, Ms. Dorr

**275. Seminar: School Desegregation.** Prerequisite: consent of instructor. Analysis of the social/political response to desegregation programs in Northern and Southern school districts; review of court decisions and development of legal policy on school desegregation. Consideration of effects of integration on school achievement and interracial attitudes.

Ms. Wrigley

**280A. Seminar: Selected Topics in Special Education (2 units).** Prerequisite: consent of instructor.

**280B. Seminar: Exceptional Individuals.** Prerequisite: doctoral standing.

**M281A-M281B-M281C. Seminar: Selected Topics in Human Ethology.** (Same as Anthropology M229A-M229B-M229C and Psychiatry M279A-M279B-M279C.) Ethologists now use successful animal behavior methodology to study human behavior. When is this appropriate, how can it contribute? Each quarter covers one level of analysis: describing and recording behavior; causation; development, especially longitudinal studies; adaptation; evolutionary origins.

Mr. Blurton Jones

**299A-299B-299C. Research Practicum in Education (4 to 8 units each).** May be repeated for credit.

**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 the study and utilization of a variety of instructional strategies and their application in elementary and secondary schools.

Ms. Crabtree, Ms. Kourilsky, Mr. McNeil

**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 the elementary school. 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.

Ms. Kourilsky

**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 the secondary school. 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.

Ms. Kourilsky

**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. Ms. Kourilsky

**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. Ms. Kourilsky

**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. Ms. Kourilsky

**324B. Supervised Teaching: Multiple Subject Instruction (2 to 10 units).** Prerequisites: course 324A and consent of instructor. Practice teaching under the daily supervision of a teacher in a classroom in which multiple subjects are taught, normally in an elementary school. S/U grading. Ms. Kourilsky

**324C. Supervised Teaching: Multiple Subject Instruction (2 to 10 units).** Prerequisites: course 324B and consent of instructor. Advanced practice teaching under the daily supervision of a teacher in a classroom in which multiple subjects are taught, normally in an elementary school. S/U grading. Ms. Kourilsky

**324D. Supervised Teaching: Multiple Subject Instruction (2 to 10 units).** Prerequisites: course 324C and consent of instructor. Advanced practice teaching under the daily supervision of a teacher in a classroom in which multiple subjects are taught, normally in an elementary school. S/U grading. Ms. Kourilsky

**325A. Laboratory in the Education of Exceptional Individuals.** Prerequisite: course 125A or consent of instructor. Six to eight hours per week of fieldwork in the UCLA Neuropsychiatric Institute School, other campus facilities, or public school special education programs.

**325B. Advanced Laboratory in the Education of Exceptional Individuals.** Prerequisite: course 325A. Six to eight hours per week of fieldwork in the UCLA Neuropsychiatric Institute School, other campus facilities, or public school special education programs.

**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. Ms. Kourilsky

**330B. Supervised Teaching: Single Subject Instruction (2 to 10 units).** Prerequisites: course 330A and consent of instructor. Practice teaching under the daily supervision of a teacher in a classroom in which a single subject is taught, normally in a secondary school. S/U grading. Ms. Kourilsky

**330C. Supervised Teaching: Single Subject Instruction (2 to 10 units).** Prerequisites: course 330B and consent of instructor. Advanced practice teaching under the daily supervision of a teacher in a classroom in which a single subject is taught, normally in a secondary school. S/U grading. Ms. Kourilsky

**330D. Supervised Teaching: Single Subject Instruction (2 to 10 units).** Prerequisites: course 330C and consent of instructor. Advanced practice teaching under the daily supervision of a teacher in a classroom in which a single subject is taught, normally in a secondary school. S/U grading. Ms. Kourilsky

**334. Supervised Teaching: Higher Education.**

Mr. A. Cohen

**337A. The Curriculum in Business Education.** The curriculum in business education in secondary schools, including instructional techniques, course content, prognosis of achievement, standards, error analyses, transfer of training, remedial techniques, and evaluation.

**337B. The Teaching of Secretarial Subjects.** A survey and evaluation of procedures and materials used in teaching typewriting, secretarial subjects, office practice, and business machines.

**360. Teaching Clinical Practicum (2 to 4 units).** Prerequisites: advanced graduate standing and consent of instructor. A professional-series course designed to develop clinical skills for the preparation of teachers. The training sequence includes a directed field assignment in the school setting. May be repeated for credit. S/U grading.

**375. Teaching Apprentices Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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.

**411A. Introduction to Educational Evaluation.** An introduction to systematic evaluation as it applies to appraising educational programs. Program evaluation is considered as a means of improving the quality of educationally relevant decisions.

Mr. Alkin, Mr. Popham

**411B. Evaluation Theory.** Course provides students with a basic understanding of prevalent evaluation theories, with various of the alternative evaluation theories currently being proposed, and with the process of theory development in educational evaluation.

Mr. Alkin, Mr. Ellett

**411C. 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.

Mr. Alkin, Mr. Popham, Mr. Skager

**413A-413B-413C. Internship in School Psychology.** Lecture, two hours; field experience, sixteen hours. Prerequisite: consent of instructor. Must be completed in three consecutive quarters; limited to students enrolled in the counseling specialization. Work experience in public schools or comparable setting performing duties of a school psychologist — psychodiagnosis, integrating case material, staffing cases, developing educational plans, working with teachers and parents, and establishing evaluative criteria.

Mr. Healy, Ms. Tidwell

**415A. The Appraisal of Intelligence.** Prerequisites: courses 210A and 211A. Concepts and theories leading to development of individual cognitive assessment instruments; issues and implications relating to the application and current practices of utilizing such tests in a multicultural society. Laboratory experience includes administration and interpretation of standardized instruments; case studies.

Mr. Healy, Ms. Tidwell

**415B. Human Appraisal in School Counseling and School Psychology.** Prerequisites: course 415A and consent of instructor. Survey and demonstration of the major techniques of cognitive, affective, and achievement appraisal and their applicability to problems found in the school setting. Research and theoretical issues concerned with appraisal are discussed.

Ms. Tidwell

**418. Instructional Analysis.** Prerequisite: consent of instructor. Analysis of instructional variables as they relate to diverse types of instructional strategies. The student acquires skill in techniques of conducting instructional research.

Ms. Baker

**419A. Experimentation on Media of Communication and Instruction.** Prerequisite: course 210A. Analysis of basic methods used and results obtained in experiments on the development of knowledge, skills, and attitudes through audiovisual communication media and other instructional programs.

Ms. Baker, Ms. Dorr

**419B. Experimental Analysis of Instructional Program Variables.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 210A, 212A, 419A. Recommended: courses 210B, and 212B or 212C. Advanced problems of methodology and rationale in the planning and conduct of experiments on the effects of psychologically defined variables in instructional programs; theory and techniques of laboratory and field experiments on instructional media.

Ms. Baker, Ms. Dorr

**420A. Principles of Curriculum.** Critical examination of the basic concepts underlying the determination of objectives, the selection and organization of learning experiences, and the evaluation process.

Ms. Crabtree, Mr. McNeil, Ms. Tyler

**420D. Curriculum: Principles and Practice.** An examination and application of various curricular perspectives to questions of purpose, learning opportunities, and evaluation.

Mr. McNeil, Ms. Tyler

**421A. Programs, Models, and Research in Early Childhood Education.** Prerequisites: one course from the development series and one quarter of field placement. Introduction to programs and research in early childhood; observation of preschool programs (cooperative nurseries, Headstart, private nurseries, Montessori preschools, day-care centers); the organization and evaluation of educational research and its relation to goals of early childhood education.

**421C. Research and Evaluation of Early Childhood Programs.** Prerequisite: course 421A or equivalent or consent of instructor. Critical review and evaluation of the various preventive and remedial programs for the young child; analysis of relevant research findings and methodological issues, with a focus on early childhood education programs.

**421D. Parents and Community Agents in Child Development.** Prerequisites: two courses from the development series and one course from early childhood education, or equivalent. A critical review of the theoretical basis and effectiveness of training programs for parents of young and elementary school-aged children; the relation of preschool parent programs to family development and the role of the programs in the community.

Ms. Feshbach

**421F. Problems and Methods of Analysis in Child Development, Education, and Social Policy.** Lecture, two hours; discussion, two hours. The seminar examines relationships among public policymakers and social scientists in the development, implementation, and evaluation of policies affecting children and their families. Students learn to design and conduct interviews, analyzing legislative documents, and present analyses to policymakers.

Ms. Dorr, Ms. Stipek

**421G. Issues in the Application of Child Development and Educational Research to Social Policy.** Lecture, two hours; discussion, two hours. The seminar examines the relevance and adequacy of child development research to specific educational and public policies affecting children. Specific topics include issues such as children's rights, day care, children's television programming, and violence toward children.

Ms. Feshbach, Ms. Howes

**422. Inquiry Into Schooling: Basic Issues.** Critical examination of basic issues and problems in the organization and reconstruction of precollegiate schooling. Consideration of historical development and changing functions of schooling in American society; school organization; schooling alternatives; problems in the management of educational change.

Mr. Goodlad, Mr. McNeil, Ms. Tyler

**423. The Humanistic Curriculum.** A consideration of the philosophical and cultural foundations of humanistic curricular strategies. Reviews techniques and procedures of affective education with a view to their place in an overall theory of teaching and learning. Mr. Weinberg

**424A. The 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. Ms. Crabtree

**424B. Reading in the Curriculum.** Prerequisite: course 210A. Study of reading curricula and instructional procedures, with emphasis on the rationale and research underlying their development and the research comparing their effectiveness. Mr. McNeil

**424C. Language in the Curriculum.** Advanced study in the school language curriculum; application to the improvement of the 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 the bilingual learner; language assessment; development of instructional component; program evaluation. Ms. Valadez

**425. Appraisal of Exceptional Individuals.** Prerequisites: courses 225A and 415A, or equivalent. Individual appraisal of exceptional individuals; analysis of tests and diagnostic procedures, case studies.

**430. Higher Education and the Labor Market.** From an economic perspective, the course deals with benefits of education; the labor market for college graduates; college as preparation for work; manpower forecasting and Ph.D. demand and supply; policies toward the doctoral labor market and adults in postsecondary education. Mr. Solmon

**431A. Administration in Higher Education.** An overview of college and university administration. Case studies of administrative problems, policies, and practices. Management information systems, resource allocations, and issues related to responsibility, authority, and participation in administrative decisions. Mr. Kintzer, Ms. Mock

**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. Mr. A. Cohen

**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. Mr. A. Cohen, Mr. Kintzer

**432. Seminar: Professional Topics in Higher Education.** Ms. Astin

**433A. Instructional Product Development.** Prerequisite: consent of instructor. An examination of the procedures employed in the systematic development of instructional products. Students acquire competencies associated with those procedures. Ms. Baker, Ms. Dorr

**433B. Technological Development in Educational Media.** Lecture, two hours; laboratory, four hours. Prerequisite: course 433A. Recommended: courses 210A, 212A. 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. Ms. Baker, Ms. Dorr

**437A. Principles of Curriculum in Economic Education.** Theories, principles, and concepts relating to an understanding of the business and economic system; their application to teaching in the secondary school. Ms. Kourilsky

**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 the strategies of their solution through curriculum policy and practice; instructional design and operation; and in-service training of teaching staffs. Mr. Erickson and the Staff

**442B. Legal Aspects of Educational Management and Practice.** Examination of the structures and kinds of law governing educational systems in the United States; constitutional dimensions of church/state relations; employees' civil rights and legal aspects of hiring, firing, and negotiating procedures; student attendance, control, and civil rights. Ms. Pope

**443. Introduction to Policy Analysis in Education.** Prerequisite: consent of instructor. An overview of the political, economic, and legal context of educational policy formation. Included in this examination are issues that impact on minorities (e.g., bilingual education, desegregation, affirmative action, the role of subdominants in the policy-making process). Mr. Catterall

**444A. Legal Aspects of Access to a Public Education.** Prerequisite: course 442B or consent of instructor. A study of access to public education focused on the issues of affirmative action, testing, tracking, bilingual/bicultural education, special education, correctional education, and malpractice suits. Ms. Pope

**444B. Equality of Educational Opportunity through Desegregation and Finance Case Law.** Prerequisite: course 442B or consent of instructor. A concentrated review of the definition of equality of educational opportunity as it is being developed by the courts in cases concerning desegregation and educational finance. Ms. Pope

**447. Seminar: Educational Policy and Planning, Special Studies (1 to 4 units).** Prerequisite: consent of instructor. Mr. Bruno, Mr. Catterall, Mr. Williams

**448A. Urban School Leadership.** Prerequisite: consent of instructor. Analysis of the problems of urban school leadership. Emphasis on the changing nature of the urban principalship, with considerable attention to the role of other school and community agencies that interact with the urban school leader. Mr. Williams

**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 quarter. Recent emphases included evaluation utilization and cost-effectiveness evaluation. Mr. Alkin, Ms. Baker, Mr. Popham

**461A. Seminar: Adult Education.**

**461B. Seminar: Adult Education in Other Countries.**

**461C. Seminar: Community Service and Development Programs in Postsecondary Education.** Mr. Kintzer

**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. Examines the logical features of instruction and demonstrates their application to inquiry techniques in teaching and learning. Analyzes various conceptions of truth, belief, fact, and opinion and studies their application to classroom learning situations. Mr. Ellett, Mr. Weinberg

**489. Instructional Strategies in Education.** Prerequisite: consent of instructor. Analyzes 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. Ms. Kourilsky

**490A. Instructional Decision Making (2 to 6 units).** 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. Ms. Baker, Ms. Kourilsky

**491A. Curricular Decision Making (2 to 6 units).** Prerequisite: consent of instructor. Examination of alternative solutions for the practical problems that classroom teachers face in making curricular decisions. Analysis of the influence of psychological, societal, and institutional factors in curricular decisions. Ms. Crabtree

**492. Evaluation of Teaching and Learning.** Prerequisite: consent of instructor. Examines relationship between appraisal instruments and information required for making decisions about teachers, pupils, and materials. Introduces recent developments in the evaluation of teaching and learning and demonstrates the use of modern appraisal techniques in classroom settings. Mr. McNeil, Mr. Popham, Mr. Skager

**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 graduate adviser and Graduate Dean, and host campus instructor, department Chair, and Graduate Dean. Limited to UCLA doctoral students in special education. The course is used to record enrollment in practicum courses taken under cooperative arrangements with California State University, Los Angeles. S/U grading.

**596. Directed Independent Study (2 to 12 units).** Individual study or research for graduate students. May be repeated for credit.

**597. Preparation for Master's Comprehensive Examination or Doctoral Qualifying Examination (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.

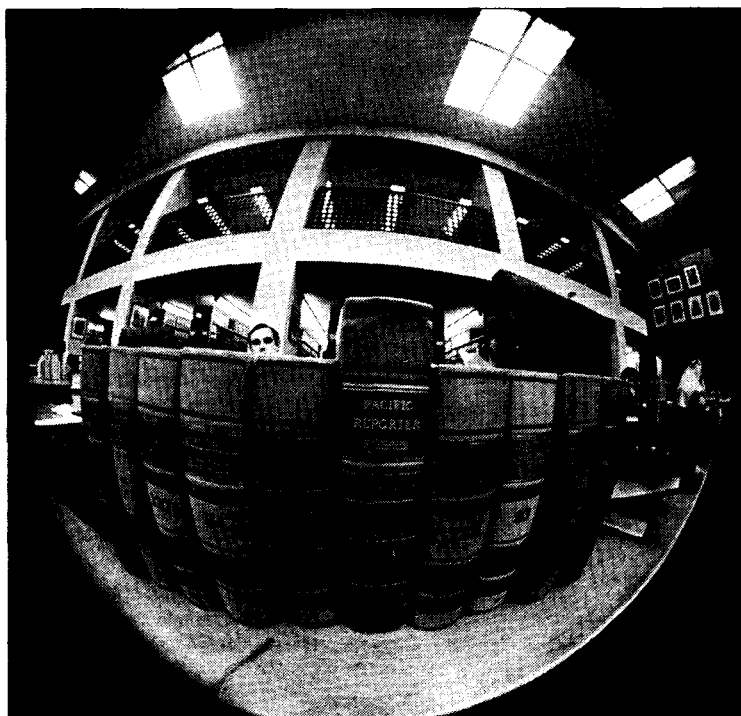
**598. Thesis Research (6 to 12 units).** Research for and preparation of master's thesis. May be repeated for a maximum of twelve units. S/U grading.

**599. Dissertation Research (6 to 12 units).** Research for and preparation of doctoral dissertation. May be repeated for credit. S/U grading.

# School of Law

**Susan Westerberg Prager, Dean**

# 10



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 policymakers.

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.

# School of Law

**General Information:** 1242 Law,  
825-4841

**Admissions:** 50 Dodd Hall, 825-2080

## Professors

Benjamin Aaron, LL.B.  
Richard L. Abel, LL.B., Ph.D.  
Norman Abrams, J.D.  
William P. Alford, LL.B., J.D., *Acting*  
Reginald H. Alleyne, Jr., LL.M.  
Alison Grey Anderson, J.D.  
Michael R. Asimow, LL.B.  
John A. Bauman, LL.M., Jur.Sc.D.  
David A. Binder, LL.B.  
Grace G. Blumberg, J.D., LL.M.  
Richard Delgado, J.D.  
David Dolinko, J.D., Ph.D., *Acting*  
Jesse J. Dukeminier, J.D.  
Carole E. Goldberg-Ambrose, J.D., *Associate Dean*  
Robert Goldstein, J.D., *Acting*  
Kenneth W. Graham, Jr., J.D.  
Harold W. Horowitz, LL.M., S.J.D.  
Edgar A. Jones, Jr., LL.B.  
Robert L. Jordan, LL.B.  
Kenneth L. Karst, LL.B.  
William A. Klein, LL.B.  
Leon Letwin, LL.M.  
Wesley J. Liebeler, J.D.  
Christine Littleton, J.D., *Acting*  
Gerald Lopez, J.D.  
Daniel H. Lowenstein, LL.B., *Acting*  
Henry W. McGee, Jr., J.D., LL.M.  
William M. McGovern, Jr., LL.B.  
David Mellinkoff, LL.B.  
Carrie J. Menkel-Meadow, J.D., *Acting*  
Herbert Morris, LL.B., D.Phil.  
Stephen R. Munzer, B.Phil., J.D.  
Melville B. Nimmer, LL.B.  
Frances E. Olsen, J.D., S.J.D., *Acting*  
Patrick O. Patterson, J.D., *Acting*  
Susan Westerberg Prager, M.A., J.D., *Dean*  
Monroe E. Price, LL.B.  
Arthur I. Rosett, LL.B.  
Gary T. Schwartz, LL.B.  
Murray L. Schwartz, LL.B., LL.D.  
Steven H. Shiffrin, M.A., J.D.  
Stanley Siegel, J.D.  
James D. Sumner, Jr., LL.M., J.S.D.  
Phillip R. Trimble, M.A., LL.B., *Acting*  
Jonathan D. Varat, J.D.  
William D. Warren, J.D., J.S.D.  
John S. Wiley, J.D., *Acting*  
Stephen C. Yeazell, J.D.  
Richard C. Maxwell, LL.B. (*Emeritus Connell Professor of Law*)  
Rollin M. Perkins, J.D., J.S.D., *Emeritus*  
Ralph S. Rice, J.D., LL.M., *Emeritus*  
Harold E. Verrall, LL.B., J.S.D., *Emeritus*  
Kenneth H. York, LL.B., *Emeritus*

## Lecturers

Thomas J. Allen, J.D.  
Paul B. Bergman, J.D.  
Susan Cordell Gillig, J.D., *Assistant Dean, Clinical Programs*  
Daniel P. Hutchinson, J.D.  
Michael Rappaport, J.D., *Assistant Dean, Admissions*  
Barbara W. Ravitz, J.D.

## Adjunct Professors

Charles M. Firestone, J.D.  
Albert J. Moore, J.D.

The School of Law, the only academic unit at UCLA which operates 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 of the United States.

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 in 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. 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 handicap 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 Admissions Office, 50 Dodd Hall, UCLA School of Law, Los Angeles, CA 90024.

## Residence and Unit Requirements

The candidate for the degree of Juris Doctor must have pursued resident law school study for six semesters and successfully completed 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 in the University. Graduate students may enroll in upper division law courses on a limited basis. Law courses are not open to non-UCLA students.

**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 numerical scale of 50 to 100, 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 Anglo-American 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.

## Cooperative 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.

### M.A.-Architecture and Urban Planning/J.D.

The School of Law and the Graduate School of Architecture and 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 schools and receive both the J.D. and M.A. degrees at the end of four years.

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

### Education Program/J.D.

The School of Law and the Graduate School 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 schools, students will be awarded both degrees on its completion.

### M.B.A./J.D.

The School of Law and the 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 American and foreign students interested in pursuing graduate studies. Law school graduates with outstanding records who may be interested in this program should contact the Admissions Office for further information.

## Other Programs

### Clinical Program

The school permits students to participate in clinical training. These activities consist of fieldwork in a variety of federal and state agencies accompanied by seminars in the school which seek to analyze and expand the agency experience.

### Extern Program

The school offers an extern program which gives students the opportunity to work in legal agencies away from the school for as long as six months (including the summer), for which they receive academic credit. Extern programs have been offered in Washington, D.C., San Francisco, New York, Hawaii, and on Indian reservations.

## First-Year Courses

The first year of law school is designed to introduce students to legal analysis using a variety of substantive fields. Each of the following courses is required of all first-year students.

**100. Contracts (5 units).** The law governing private agreements. Analysis of the criteria for determining whether or not a particular promise or voluntary agreement is legally enforceable and a survey of the major legal issues affecting enforceable agreements. Problems of interpreting contract language, the role of contract in a market society, the conflict between the commercial need for certainty and the demands of individual fairness, and the relationship between contract law and other areas of law.

Mr. Asimow, Ms. Littleton, Mr. Lopez, Mr. McGovern, Mr. Rosett, Mr. Sumner

**110. Legal Research and Writing (5 units).** The year-long course teaches first-year students how to find the law, how to analyze it, and how to communicate their conclusions in writing. The course focuses on the skills of analyzing legal authority, developing arguments to solve specific problems where there is conflicting authority, and structuring legal writing which is clear, informative, and persuasive.

**120. Criminal Law I (3 units).** Selected topics in substantive criminal law. Consideration of principles underlying the definition of crime; an examination of various attempts to eliminate the requirement of mens rea and a consideration of such general doctrines as ignorance of fact and ignorance of law, causation, attempt, complicity and conspiracy; inquiry into principles of justification and excuse, with particular attention to the doctrines of necessity, intoxication, insanity, diminished capacity, and automatism. Emphasis on the basic theory of criminal law and the relationship between the doctrines of criminal law and the various justifications for imposition of punishment.

Mr. Abrams, Mr. Dolinko, Mr. McGee, Mr. Morris, Mr. M. Schwartz

**121. Criminal Law II (3 units).** The criminal process insofar as it is affected by constitutional and statutory prescriptions and proscriptions. The restraints on law enforcement officers, including such police activities as arrest, stop-and-frisk, inspection and detention of various kinds; taking of statements; the modern techniques of electronic surveillance; and seizure of property with and without a warrant. Emphasis on the judicial resolution of the tension between constitutional imperatives and the techniques used to prevent crime and apprehend and convict those who commit it.

Mr. Abrams, Mr. Dolinko, Mr. Goldstein, Mr. McGee, Mr. Morris, Mr. M. Schwartz, Mr. Shiffrin

**130. Property (6 units).** An analysis of property as a social institution and particularly of the dynamics of the system for recognizing and protecting competing claims to resources. Major problem areas include the historical development of various kinds of interests in property, sale and financing of real estate, housing, landlord and tenant, and public and private land-use planning and development.

Ms. Blumberg, Mr. Dukeminier, Mr. Lowenstein, Mr. Munzer

**140. Torts (5 units).** Personal injury law as it has developed within the Anglo-American legal tradition. The concept of negligence, the refinements of negligence law, and the doctrine of intentional torts. Contemporary rules of strict liability. Effort to identify the basic purposes which our tort law system achieves or should achieve.

Mr. Abel, Ms. Anderson, Mr. Jones, Ms. Olsen, Mr. G. Schwartz, Mr. Shiffrin

**145. Civil Procedure (5 units).** The processes that courts follow in deciding disputes in noncriminal cases. The way in which conflicts are framed for courts, the stages through which litigation goes, the division of power among the various decision makers in the legal system and between the state and federal courts, the territorial limitations on the exercise of judicial power, the principles that define the consequences of a decision once a court has finished with a case, and the special opportunities and problems of litigations involving multiple disputants.

Mr. Bauman, Mr. Delgado, Ms. Goldberg-Ambrose, Mr. Graham, Mr. Letwin, Mr. Yeazell

## Second- and Third-Year Courses\*

All of the courses in the second- and third-year curriculum are elective with the exception of Law 312. Students must complete the professional responsibility requirement to graduate, either by preparing a paper in consultation with a faculty member or by completing one of the sections of course 312. The different sections vary in emphasis.

\*The School of Law maintains its own course numbering system; course numbers as shown here do not correspond to Graduate Division course numbering definitions.

**312. The Legal Profession (Section 1).** The law of the lawyer as part of the system of justice. The role of the lawyer in society historically and today; unique professional responsibilities and ethical dilemmas; right to counsel and right to self-representation; and professional and societal measures taken to assure availability of counsel and the qualified performance of the role. A study and critique of the Code of Professional Responsibility and the California Rules of Professional Conduct; a wide and varying selection of contemporary problems facing the profession. The course satisfies the professional responsibility requirement.

Mr. Mellinkoff, Ms. Menkel-Meadow, Mr. M. Schwartz

**312. The Legal Profession (Section 2).** Considers what is wrong with the legal profession and what, if anything, can be done to change it. Sociological explanations for unethical behavior in terms of the structure of practice, patterns of recruitment, socialization, and allocation to professional role, and the failure of disciplinary procedures. The allocation of lawyers' services by market mechanisms in an unequal society leads to overrepresentation of the few and underrepresentation of most. The concept of legal "need," why we might want to meet unmet need, and the multiplicity of recent reforms that speak to this problem. The course satisfies the professional responsibility requirement.

Mr. Abel



## Elective Courses

**200. Constitutional Law I.** Ways in which the United States Constitution (1) distributes power among the various units of government in the American political system and (2) limits the exercise of those powers. Structural limitations on government: the division of powers between the nation and the states in the federal system, and the separation of powers among the three branches (legislative, executive, and judicial) of the national government. Civil War Amendments (13th, 14th, and 15th) as limits on the states and as sources of congressional power. The proper role of the judiciary in limiting the action of other branches of government. Mr. Asimow, Mr. Karst, Mr. Shiffrin, Mr. Varat

**201. Constitutional Law II.** The First Amendment's guarantees of the freedoms of speech, press, and assembly, and the First Amendment's prohibition of the establishment of religion and its guarantee of the free exercise of religion. Jurisdictional limitations on the federal courts' exercise of the power of judicial review.

Mr. Karst, Mr. Nimmer, Mr. Shiffrin, Mr. Varat

**205. Family Wealth Transactions.** The law of wills, trusts, and future interests. The wealth transmission process from the perspectives of social critics and estate planners. The substantive law of wills and trusts. The administration of decedents' estates and of trusts.

Mr. Dukeminier, Mr. McGovern, Mr. Sumner

**206. Estate Planning.** Prerequisites: courses 220 and 222 or consent of instructor. A study of the tools and techniques available to plan for the medium-to-large estate. Reference to materials in a problem solving context involving the federal estate and gift tax aspects and federal income tax implications thereof.

**207. Community Property.** Community property laws of the eight states which follow the community property approach to marital property inherited from the Spanish law. Helps develop a detailed working knowledge of the California community property system and explores the debate over marital property policy choices. Ms. Blumberg, Ms. Prager

**208. Real Property Secured Transactions.** The use of land as security for debts, with the California cases and statutes presented as an example of an operating system. The real estate security device from its common law origins to the modern deed of trust as it exists in California. Mr. Jordan, Mr. Warren

**211. Evidence.** The law of evidence is concerned with the process by which parties may prove facts which are essential to the existence of rights and liabilities in civil and criminal litigation. Rules for determining the relevance of evidence, the qualifications which must be met by witnesses, the regulation of the form and manner of interrogating witnesses, privileges granted to certain persons and institutions to refuse to disclose information, the special status of expert witnesses and the problems of proving technical facts, and rules governing documentary proof. The rule excluding hearsay evidence and the exceptions to that rule.

Mr. Abrams, Mr. Bergman, Mr. Graham, Mr. Letwin

**212. Federal Courts.** Selected problems in the jurisdiction and lawmaking powers of the federal courts, including the appellate jurisdiction of the Supreme Court; federal habeas corpus; the federal-question jurisdiction of the federal district courts; intervention by federal courts in state court proceedings; and choice of law in the federal courts.

Ms. Goldberg-Ambrose, Mr. Karst, Mr. Varat

**214. Civil Rights.** An in-depth study of federal civil rights legislation. An examination of the history and modern development of the post-Civil War enactments, including 42 U.S.C. §§ 1983, 1985, 1986, and 1988. Modern civil rights legislation barring recipients of federal financial assistance from discriminating on the basis of race, color, national origin, sex, handicap, or age. Mr. Goldstein, Mr. Lopez, Mr. Varat



*School of Law students sharpen their trial advocacy skills using the facilities of a clinical education classroom.*

**216. Administrative Law.** Public law with two emphases: (1) the processes by which federal agencies define and carry out policies and (2) the possibilities and limits on control of such executive action by the other two branches of government, particularly by the judiciary. The legal doctrines that define the power of courts to review administrative action and the constitutional, statutory, and customary forces shaping the administrative process itself. The place of individual liberties in a pervasively regulated social order.

Mr. Abrams, Mr. Asimow, Mr. Yeazell

**M217. Topics in Legal Philosophy.** (Same as Philosophy M256.) Prerequisite: consent of instructor. An examination of topics such as the concept of law, the nature of justice, problems of punishments, legal reasoning, and the obligation to obey the law. May be repeated for credit by consent of instructor.

Mr. Morris, Mr. Munzer

**220. Federal Taxation I.** Fundamentals of federal income taxation, particularly as they apply to individuals. Gross income, the taxpayer to whom the income will be attributed, deductions and credits available in computing tax liability, the year in which income is properly reported and deductions properly taken, and characterization of income as ordinary income or capital gain. Issues of tax policy and reform and the provisions of the Internal Revenue Code and Income Tax Regulations.

Mr. Asimow, Mr. Klein

**221. Federal Taxation II.** Prerequisite: course 220. Course 230 may be taken concurrently. An application and extension of the principles of course 220 to the partner-partnership and shareholder-corporation relationships. The federal income tax consequences of the formation of partnerships and corporations, distributions to partners and shareholders, and liquidations and sales of partnership or shareholder interests.

Mr. Siegel

**222. Federal Tax III.** Federal taxation of gifts and decedents' estates; federal income taxation of trusts and estates. Emphasis on tax planning techniques. The course is of considerable importance to anyone who expects to practice in the areas of tax planning, estate planning, family law, and probate, among others.

Mr. Hoffman

**223. Tax Legislation and Policy.** The basic policy issues in federal income taxation. The ethical justification for a progressive income tax; the possibility of basing the tax on consumption rather than income; the criteria for sound policy; and the general debate over deductions, credits, and other sources of "erosion" of the tax base.

**226. Taxation of Foreign Income.** Prerequisites or corequisites: courses 220, 221. Tax planning for foreign investment in the United States. Basic rules of U.S. taxing jurisdiction, source of income, withholding, residence, and what constitutes a trade or business. Planning strategies for portfolio investment, direct investment, and acquisition of U.S. real property. Use of income tax treaties and coordination with foreign tax requirements.

Mr. Rabinowitz

**230. Business Associations.** The issues that must be addressed when people decide to form joint economic ventures and how these issues are resolved in the law of agency, partnership, and corporation. The federal securities laws and their impact on planning for an operation of business ventures.

Ms. Anderson, Mr. Klein, Mr. Siegel

**234. Law and Accounting.** Prerequisite: consent of instructor (for students with more than two undergraduate accounting courses). Recommended for students with no prior accounting training. Basic concepts of financial reporting by business enterprise. Bookkeeping; underlying principles of accounting. The relevance of accounting data to legal decision making, including the implications of financial accounting on planning and structuring businesses, compliance with federal securities laws, and reporting for federal income tax purposes. Provides the potential lawyer with understanding and background to read, comprehend, and interpret financial statements.

Mr. Siegel

**235. Business Planning.** Prerequisites: courses 220 and 230. Course 221 may be taken concurrently. An advanced course on the establishment, structuring, and restructuring of business enterprises, primarily in the corporate form. The class analyzes four or five realistically complex problems, examining the state and federal corporate problems, the federal income tax implications, and the financial and accounting aspects of each problem. The objective of the analysis is to prepare specific and comprehensive plans for dealing with each problem, considering all realistic alternatives and justifying the choices made.

Mr. Siegel

**236. Securities Regulation.** Prerequisite: course 230 or consent of instructor. Federal and state regulation of the issuance of new securities and trading in outstanding securities. The Securities Act of 1933; the disclosure process as administered by the Securities and Exchange Commission; and exemptions from the prospectus requirements. Disclosure provisions of the Securities Exchange Act of 1934.

**238. Corporate Reorganization.** Prerequisites: courses 221 and 230. A study of corporate combinations and acquisitions using equities as the medium of exchange, including mergers, sale of assets and stock for stock exchanges. Transactional point of view, combining consideration of corporate, securities regulation, tax, accounting, creditors' rights, and other problems.

**239. Elements of Economic Organization.** Types of economic enterprise with diverse objectives and organizational forms. The objective is to learn more about the context in which legal issues arise and about a variety of legal arrangements and devices normally not studied in law school courses. The insights gained from this inquiry are directed toward examination of basic elements of business organization, including sources of inputs, control, risk, reward, duration and termination, control of conflict, and the relationship among these.

Mr. Klein, Mr. Siegel

**240. Antitrust I.** Basic understanding of the federal antitrust law: the Sherman, Clayton, and Robinson-Patman Acts. Monopoly, cartels (price fixing, market division, boycotts), vertical restrictions (resale price maintenance, territory and customer allocation), mergers, price discrimination, joint ventures, tie-in arrangements, reciprocity, requirements contracts, etc. The economic perspective used by modern antitrust analysis.

Mr. Liebel, Mr. Wiley

**245. Antitrust II.** Prerequisite: course 240. The historic Sherman Act monopolization and merger cases. The economic underpinnings of oligopoly theory, which presumably forms the basis for current antitrust policy toward concentrated industries; the validity of the so-called "Market Concentration Doctrine." Current antitrust efforts aimed at monopoly and "shared monopoly."

Mr. Liebel

**247. Law and Economics.** An economics background is not required. The basic theory of voluntary exchange and the conditions necessary for a voluntary exchange system to maximize community welfare, applied to various types of legal problems in an attempt to gauge the extent to which legal rules contribute to (or hinder) the maximization of such welfare.

Mr. Liebel

**248. Debtor and Creditor Law.** Prerequisite (or corequisite by consent of instructor): course 250. An examination of insolvency law. The law of bankruptcy as it affects both individuals and businesses. Liquidation of bankrupts' estates (Bankruptcy Code Chapter 7); rehabilitation and reorganization (Chapters 11 and 13). The relationship between the rights of secured creditors and the power of the trustee in bankruptcy to avoid certain liens. Related topics in the enforcement of judgments, statutory lien law, and the law of fraudulent conveyances.

Mr. Jordan, Mr. Warren

**249. Business Reorganizations under Bankruptcy Laws.** The reorganization of businesses under the Bankruptcy Reform Act of 1978. Topics include legislative history of the 1978 act; choice of proceedings; commencement of reorganization case; powers and duties of participants; operation of the business and the secured creditor versus the estate; formulating a plan; solicitation of acceptances confirmation; and post-confirmation matters.

Mr. Klee, Mr. Warren

**250. Commercial Transactions.** A detailed examination of the Uniform Commercial Code. A study of Article 9 of the Code, the law governing security interests in personal property. Business collateral such as equipment, inventory, accounts receivable, and chattel paper, as well as the financing of purchases by nonbusiness consumers. Some aspects of bankruptcy law, primarily the law of preferences, applicable to secured creditors. Commercial paper, the law of negotiable instruments (Article 3 of the Code), bank collection process (Article 4), documents of title (Article 7), letters of credit (Article 5), and aspects of sales law (Article 2) that bear on secured transactions and commercial paper.

Mr. Jordan, Mr. Warren

**252. Unfair Competition/Business Torts.** Prior knowledge of the law of federal antitrust and jurisdiction is helpful but not required. A variety of legal rules regulate the process of capitalist competition. For instance, various doctrines may proscribe false or comparative advertising, product development and imitation, the hiring of competitors' employees, interference with competitors' relations with their customers, and other business behavior falling in the broad category of "unfair competition." The blackletter content and the theoretical justifications for these rules, which often may escape the confining label of "tort," are examined, as is the federalism of unfair competition (the relationship between federal and state legal regimes).

Mr. Wiley

**253. Regulated Industries.** The theoretical justifications for, and fundamental criticisms of, leading types of economic regulation. Survey of the regulatory structures and issues in the transportation, communication, and energy utility sectors, using statutes, cases, and secondary material to introduce students to the legal issues that traditionally have dominated these fields. The intellectual foundations and empirical results of the recent deregulation movement in these three sectors.

Mr. Wiley

**260. Labor Law I.** Basic information concerning the laws and decisions which provide the framework for the national labor policy in the private sector. The National Labor Relations Act, the Labor Management Relations Act, the Railway Labor Act, and the Norris-La Guardia Anti-Injunction Act. Areas include collective bargaining; selection of bargaining representatives and determination of bargaining units; unfair labor practices; emergency disputes; federal-state jurisdiction; application of antitrust laws; and grievance and arbitration procedures.

Mr. Aaron, Mr. Alleyne, Mr. Jones

**261. Labor Law II.** Prerequisite: course 260 or consent of instructor. Collective bargaining in the public sector (government employment at the federal, state, and local levels). Differences and similarities in the private and public sectors, and the responses of federal and state legislatures and of the courts to the special problems of collective bargaining in the public sector.

Mr. Aaron, Mr. Alleyne

**262. Law of the Collective Agreement.** Prerequisite: course 260. Limited to ten students. Enhances understanding of labor arbitration by a comparative study of the decision of issues brought to labor arbitration which have also been presented to the NLRB and federal courts. Transcripts and exhibits of actual arbitration cases are used. Each student works with three case files, functioning as a union advocate in one, an employer advocate in a second, and an arbitrator in the third. Each student prepares two briefs, one arbitration opinion and award, and a research paper.

Mr. Jones

**263. Employment Discrimination Law.** Laws prohibiting employers, unions, and employment agencies from discriminating on grounds of race, sex, religion, and national origin. Interplay between the federal Equal Employment Opportunity Act of 1964 (Title VII) and other related state and federal statutes and federal constitutional provisions. Employment discrimination remedies; affirmative action hiring requirements for federal and federally financed employers; affirmative defenses such as the existence of collective bargaining agreement seniority clauses.

Mr. Alleyne

**264. Workers' Compensation and Workers' Injuries.** The law of the workers' compensation system, developed in the early 20th century as an alternative to the tort system. The evolution of the leading concepts of workers' compensation law. Theoretical implications, the general theory of workers' compensation, and its economic impact. Legal issues raised by the federal Occupational Health and Safety Act.

Mr. G. Schwartz

**265. The Employment Relation and the Law.** Analysis of the legal protection furnished individual employees through workmen's compensation, unemployment compensation, social security, fair labor standards, and similar legislation.

Mr. Alleyne

**267. Indian Law.** The special legal status of American Indians and Indian tribes and the tension between moral/legal claims and political forces. The sources and scope of federal, state, and tribal power on Indian reservations; property law concepts unique to Indian tribes and Indians; rights to American Indians in relation to federal, state, and tribal governments and the federal trust relationship to Indians.

Ms. Goldberg-Ambrose

**268. Labor Law III.** The rights and obligations of individual employees in collective bargaining units, especially of those who choose not to belong to a union, under present legislation, as well as some employment rights of employees of unorganized firms. The law of the Labor-Management Reporting and Disclosure Act of 1959, insofar as it relates to the regulations of internal union affairs.

Mr. Aaron

**269. Law, Foreign Policy, and National Security.** Various legal considerations and restraints, both national and international, affecting the formulation of foreign policy and protection of national security. The decision making process, including the constitutional balance between executive and legislative branches, the foreign relations power of the President, the War Powers Resolution and the Treaty Power. The role of bureaucratic politics. The congressional regulation of foreign policy and its attempts to subject intelligence activities to the rule of law. The problem of protecting national security information in a free society and other Bill of Rights issues. The role of international law affecting national security, including the UN Charter, and multilateral and bilateral arms control obligations.

Mr. Trimble

**270. International Law.** The role of law and legal institutions in international relations and in government foreign affairs decision making, particularly on the part of the United States. Nature and source of international law and how it is applied in the relations of states. The allocation of responsibility for decision making within the international system and how conflicts in the assertion of jurisdiction are resolved. Major limitations on the exercise of authority by states. The use of force by states, paramilitary groups, and international organizations.

Mr. Trimble

**271. International Business Transactions.** Provides a critical understanding of the fundamental legal issues that arise in international trade, licensing, and investment. The legal and financial institutional framework within which international business is conducted; national and international limitations affecting the movement of goods, the transfer of technology, and the flow of capital; the organization, financing, and protection of international business undertakings; the use of agents, distributors, and licensees; problems of contract negotiation and dispute resolution in an international setting; and foreign investment. Mr. Alford, Mr. Rosett

**272. International Economic Law and Organization.** Public international law affecting private economic activity, principally in the areas of trade, investment, and monetary affairs; the roles of the GATT, IMF, World Bank, UNCTAD, and the UN Center on Trans-National Corporations; and the U.S. law governing the negotiation and implementation of international agreements. Mr. Trimble

**278. Comparative Law: Chinese Law.** 20th-century transformations in Chinese law in the context of their jurisprudential and historical background. Provides a general introduction to the nature and function of law in China, fosters comparative legal analysis, and equips future practitioners to address legal problems arising from commercial interaction with China. Mr. Alford

**279. Admiralty Law.** A study of the special jurisdictional, procedural, and substantive rules applicable to water-based activities, especially the carriage of passengers and goods by water. The allocation of disputes involving such activities between state and federal courts, the rules of practice applicable to maritime liens, the special procedures for limiting shipowners' liability, and the sources and nature of laws governing maritime torts, contracts, and property. The applicability of traditional maritime doctrines to modern phenomena such as offshore drilling, containerization, and oil spills. Ms. Goldberg-Ambrose

**280. Aviation Law.** The regulation of aviation and air transport under both international and domestic law. The nature and sources of aviation law, the legal regime of the airspace and the aircraft, and the regulation of users of the airspace, including jurisdiction over hijackings and other offenses committed aboard aircraft. The role of the Civil Aeronautics Board in the regulation of domestic air transport. The regime of liability for international air carriers established by the Warsaw Convention and subsequent instruments, and the liability of aircraft manufacturers, maintenance, repair, and service facilities, and air traffic control and advisory services. Mr. Margo

**M285. Governance: State, Regional, and Local (2 to 3 units).** (Same as Architecture and Urban Planning M202B.) Legal problems involving local governmental entities; sources and extent of powers and duties with respect to personnel, finance, public works, community development, and related topics. Mr. McGee

**M286. Public Control of Land Development (3 units).** (Same as Architecture and Urban Planning M202A.) Analysis of the legal and administrative aspects of the regulation of land use and development, and the problems and techniques of urban planning; dwelling legislation, building codes, zoning, subdivision controls, public acquisition of land, tax controls, and urban development. Mr. McGee

**M287. Urban Housing and Community Development (2 to 3 units).** (Same as Architecture and Urban Planning M231.) The course comprehensively considers the rebuilding and construction of American cities, with the major emphasis on the "housing process" — the way in which shelter and related facilities are created by the institutions which direct housing activities in urban areas. Students are encouraged to undertake research projects, with emphasis on field research, in lieu of a substantial portion of the final examination. Mr. McGee

**M290. Environmental Law and Policy (2 to 3 units).** (Same as Architecture and Urban Planning M264.) The course first examines, from perspectives meaningful to legal institutions, the nature of environmental problems. It then considers the means by which law has responded, and can and should respond, to problems of environmental quality. Both common law and legislative and administrative measures are considered. The course uses the air pollution problem as the primary vehicle for study.

**292. Water Law.** The basic components of United States water law; the riparian system of allocating water used in the Eastern United States, the appropriation system of allocating water used in the Western United States, and the federal overlay of reserved rights, navigation power, and reclamation. Water use efficiency and conservation, protection of instream water uses, groundwater management, public rights to water-based recreation, and water pollution.

**295. Criminal Procedure.** The process by which courts decide the guilt or innocence of those accused of crime and the selection of an appropriate penalty. The right to bail and other devices by which accused persons can be released following arrest and pending trial. The process by which the prosecutor decides what charges to file and the limits on charging power, including the grand jury and the preliminary hearing. Criminal pleading, including the process of plea bargaining. The trial process, including the right to trial by jury and sentencing procedures.

**299. Federal Criminal Law Enforcement.** The special nature of federal criminal law enforcement and how state and federal systems of criminal justice relate to each other. Limits on federal criminal jurisdiction; how federal enforcement priorities are determined and by whom; enforcement techniques; witness protection programs; extradition and removal; double jeopardy and the *Petite* policy; and the problems involved in prosecutions under federal criminal statutes such as those relating to mail fraud; civil rights; Hobbs Act and RICO (Racketeer-Influenced and Corrupt Organizations). Mr. Abrams

**300. Remedies.** The kinds and nature of relief afforded by courts to litigants in civil litigation. The theory and general principles governing the award of compensatory damages, equitable remedies, and restitution. The substantive law of restitution and the history of equity jurisdiction. Mr. Bauman

**305. Entertainment Law.** The law of copyright in connection with literary, musical, and artistic works, including originality, types of works protected, duration and renewal, assignments, infringement actions, and remedies. Unfair competition in literary, musical, and artistic works, the protection of ideas by property, quasi-contract, express and implied contract theories, defamation and invasion of privacy, the right of publicity, and performers' rights. Mr. Nimmer

**306. Patent and Trademark Law.** Designed for the future general or business lawyer who needs a general understanding of the patent and trademark laws and their relation to other intellectual property laws such as copyrights. The requirements for patentability and procedures for obtaining a patent which have a major effect on the eventual scope of protection obtained. Business arrangements involving patents and their relation to the antitrust laws; patent litigation. Mr. Pretty

**313. Conflict of Laws.** Problems resulting from multistate (both sister state and foreign nation) disputes. The choice of law problem, constitutional limitations on state choice of law, recognition of foreign judgments and jurisdiction. Analysis of the governmental interests implicated in the dispute. Mr. Bauman

**317. Family Law.** The *de jure* and *de facto* husband-wife relationship. Legal principles and social policies governing the creation, maintenance, and dissolution of the conjugal relationship. Property and support issues, divorce-related child custody, and the legal status of extramarital children. Ms. Blumberg, Ms. Olsen

**319. Law and the Political Process.** Recommended prerequisite or corequisite: course 201. Ways in which the laws governing the political process affect and reflect political power relationships. Statutory reforms enacted in the past 10 to 15 years at the federal and state levels. Right to vote, reapportionment, political parties, bribery, campaign finance, incumbency, ballot propositions, lobbying, and conflict of interest. Mr. Lowenstein

**323. Bioethics and the Law.** Legal, moral, and economic analysis of problems posed by advances in biomedical technologies. Examination of problems raised by (1) behavior control through psychosurgery, psychoactive drugs, and electrical stimulation of the brain; (2) genetic engineering; (3) amplification of human powers and faculties by organ transplantation, man-machine symbiosis, and pharmacologically induced enhancement of mental functioning; (4) death control; and (5) regulation of experimentation with human subjects. Mr. Delgado

**327. Communications Law.** Legal issues associated with the regulation of electronic mass media. First Amendment differences between print and broadcasting, broadcast licensing and the content-oriented regulations and policies of the Federal Communications Commission. Industry structures, networking, access to the media, public broadcasting, political broadcasting, fairness doctrine, and entertainment format changes. Regulation of cable TV and the merging of the media with new technologies, including telecommunications carriers, satellites, and fiber optics. Options for rewriting the Communications Act. Mr. Firestone

**329. Women and the Law.** A study of ways in which court decisions, statutes, and the operation of the legal system reflect ideas about what women and men are like and what their roles in life should be. "Protective" labor legislation, voting rights, equal protection of the laws, the Equal Rights Amendment, control of childbearing, employment discrimination, and either topics in criminal law (rape, prostitution) or topics in family law (the marriage obligation and grounds for divorce). Ms. Goldberg-Ambrose, Ms. Littleton

**330. Language of the Law.** A critical examination of the language lawyers use, how it got that way, and how it works out in the practice. Analysis of validity for a special language of the law; the myth of precision; the limited role of terms of art; tautology and unintelligibility as professional habit; writing law for lawyers and for nonlawyers; law usage that is better or worse than the common language. Mr. Mellinkoff

**331. Immigration Law.** An overview of the immigration and naturalization process from the practitioner's point of view. Nonimmigrant and immigrant visas, consular practice, deportation/exclusion proceedings, naturalization and citizenship, constitutional issues related thereto, and specific remedies available. Ms. Ibarra

**332. Children and the Law.** Judicial and legislative allocation of power and responsibility between parents and the state; the child's economic situation with the family; child custody; adoption; medical treatment of minors; parental right to discipline children; neglect and abuse; state-enforced limitations on the liberty of minors and juvenile delinquency. Ms. Blumberg

**335. Religious Legal Systems.** The literature and institutions of a religious legal system. The course is offered from time to time by different instructors in Canon law, Islamic law, and the Rabbinic legal tradition. While the content of the course varies depending on the particular tradition under study, all emphasize concerns common to a legal system based on divine authority. The extent of human authority to interpret and modify the received law to meet new circumstances, the relation between law and morality, and the interaction between religious and secular law. Mr. Dorff, Mr. Rosett

**336. English Legal History.** The growth of the Common Law and Trial by Jury in the period from 1187 to 1765. Mr. McGovern

**337. Legal History: Histories of Contract.** The different accounts offered of this basic legal and economic institution with an eye to deciding who is right or what the major disagreements are. The role of consideration, tort, and contract, the doctrine of fair price, contract in a preindustrial economy, the role of procedure in contract enforcement. In a system that gives authority to precedent, is *all* legal writing a form of legal history? If not, what is special about legal history and what makes good legal history? Changes in basic substance or outer form of contract.

Mr. Yeazell

**400. Pretrial Lawyering Process (Clinical).** Provides training and practical experience in the full range of skills used by lawyers during the pretrial phases of the civil litigation process. The development of interviewing, case planning, fact-gathering, counseling, pleading, formal discovery, negotiation, and lawyer decision making skills. Fieldwork offers an opportunity to employ lawyering skills in a law office setting under the supervision of experienced legal services attorneys.

Ms. Menkel-Meadow, Mr. Moore, Mr. Patterson

**401. Appellate Advocacy (Clinical).** The concepts of logic and the principles of argument and persuasion in the context of appellate advocacy. Students gain practical experience by working in public prosecutorial and defense offices at the federal and state level under the direct supervision of experienced appellate practitioners.

Mr. Patterson

**402. Fact Investigation and Discovery in Complex Litigation (Clinical).** The process of developing and proving facts, the relationship between the discovery of facts and proof at trial, and the range of formal and informal discovery devices available for use in complex litigation. Through fieldwork in public law offices and private law firms, students work on various aspects of discovery in major pieces of litigation under the supervision of an experienced litigator.

Mr. Binder, Ms. Gillig,

Mr. Hutchinson, Mr. Patterson

**403. Interviewing, Counseling, and Negotiation (Clinical).** Basic interviewing and counseling concepts in the areas of litigation, business, and estate planning. The extent to which these principles require modification in the areas of estate and business planning. In the business area, the course also explores the relationship between negotiation and counseling.

Mr. Binder

**405. Trial Advocacy (Clinical).** Designed to provide training in the full range of skills needed by a trial advocate. A year-long series of classes emphasizing the development of courtroom advocacy and other lawyering skills: case planning, direct and cross-examination of witnesses, opening statement and closing argument, client and witness interviewing, case investigation, negotiation, and examination of expert witnesses. In Fall Semester role-play exercises are legal or nonlegal in nature and are capped off with a mock trial. During Spring Semester students actually appear in court and represent indigent clients under the direct supervision of instructors.

Mr. Bergman, Mr. Moore, Mr. Patterson

**407. Mediation and Alternative Dispute Resolution.** Issues, principles, and skills implicated in the use of nonadversarial methods of dispute resolution. The theories and various approaches to conflict resolution, including comparisons among and between adjudication, arbitration, mediation, med-arb, mini-trials, and community dispute centers. Some of the difficulties with alternative dispute resolution, including the role of law, inequality among the parties, consent, motivation, enforcement, and effects of alternative dispute resolution. Comparative study of dispute institutions in other political and legal systems. Through skills training and role-play exercises students learn and practice the skills necessary to conduct mediation and arbitration sessions.

Ms. Menkel-Meadow

**408. Legal Negotiation (Clinical).** The theoretical and practical aspects of the process of negotiating transactions and disputes in our legal system. Negotiation theory, using both legal and behavioral science materials; differences between litigation and transactional negotiations; the context in which particular negotiation strategies and tactics are successfully employed; ethical and normative implications of negotiating; the role negotiation plays in our legal system, both in dispute resolution and in legal planning; negotiating, both from planning and behavioral perspectives.

Ms. Menkel-Meadow

**445. Planning and Drafting Small Estates (Clinical).** The substantive law of estates, wills, trusts, and tax as those laws relate to testamentary disposition of small estates. Interviewing, drafting, and counseling techniques. In fieldwork, students are assigned clients and interview them to determine their estate planning needs. Students discuss with a supervising probate attorney the kind of estate plan needed and then draft an appropriate plan and review it with the attorney.

Mr. Bergman, Mr. Binder, Ms. Gillig

**500. Seminar in Constitutional Law.** Selected topics in constitutional law.

Mr. Karst, Mr. Shiffrin, Mr. Varat

**501. Seminar in Tax Planning.** The objective of the seminar is to develop approaches to the financial analysis of problems of tax planning with the aid of computers. Background in the use of computers is not required. The challenge is to figure out the effect of all the variables that determine the financial effect of a tax planning decision over time. Students are instructed in the development of models for tax analysis and in computer use and are expected to produce a tax analysis of a problem. Access to a computer is provided.

Mr. Anderson, Mr. Klein

**502. Seminar in Copyright Law.** Prerequisite: course 305. Each student is assigned a specific topic relating to some aspect of copyright law, which is the subject of an in-depth study. The student first makes an oral presentation of the topic to the seminar and thereafter submits a fully researched paper dealing with the topic.

Mr. Nimmer

**503. Seminar in Criminal Law (Rape).** The legal definition of rape, the procedural rules applied in the administration of rape statutes, and the sentences provided for rape offenses. In order to determine and critically evaluate the empirical and moral responsibilities of prosecutors and defense attorneys, rape cases are also examined, as are civil alternatives to rape prosecutions.

Ms. Goldberg-Ambrose

**504. Seminar in Theory of Property.** A philosophical examination of labor defenses of property; property and economic structure; justifiability of gifts and bequests; property and human nature; takings. Readings from Locke, A. Smith, Mill, Hegel, Marx, contemporary writers, and instructor's work in progress. Some familiarity with philosophy would be an advantage.

Mr. Munzer

**507. Seminar in Current Issues in Labor Law.**

Mr. Aaron, Mr. Alleyne

**516. Seminar in International Law: The Changing International Legal Order — A Chinese Perspective.** Doctrines and practices of the People's Republic of China (PRC) regarding the role of law in various international contexts. Issues both of public international law and the law of international trade and investment. The nature and sources of international law; the role of the United Nations and other international organizations; national sovereignty; territoriality; the regulation of natural resources lying within and beyond territorial limits; international human rights standards; the new international economic order; the regulation of foreign trade and investment; the resolution of disputes. Topics are considered in light of China's history and her present legal, political, and economic circumstances and as a means of tracing the changing nature of the international legal order. Comparisons are drawn to the doctrines and practices of Taiwan, Japan, the U.S., the U.S.S.R., and selected developing nations.

Mr. Alford

**M524. Seminar: Philosophy of Law.** (Same as Philosophy M257.) Prerequisite: consent of instructor. Selected topics in the philosophy of law. May be repeated for credit by consent of instructor.

Mr. Morris

**525. Seminar in Communications Law.** Prerequisite: course 327. Students select specific topics in communications law, with emphasis on the effect of new technologies on the legal issues associated with a particular problem, and prepare one or more papers designed to address legislative or litigative solutions to the problem. Students' work may be used in ongoing litigation or in current legislative deliberations.

Mr. Firestone

**M526. Seminar: Urban Affairs.** (Same as Architecture and Urban Planning M202C.) The purpose of the course is to explore in a concrete case setting the application of legal tools to the solution of planning and land-use problems. Real situations are selected in which significant planning problems exist that appear to be amenable to solution by careful analysis and application of legal tools. A number of case studies are selected so that students may choose one issue which directly interests them. For each case, a specific client works with the class in presenting the problem that client is facing and remains available through the course of the project for consultation; the end product for each case is the presentation of a formal report. Clients include the City Planning Commission, the Environmental Quality Board, the Housing Authority, and others.

**M533. Seminar on Law, Medicine, and Human Values (2 units).** (Same as Psychiatry M261.) Prerequisite: consent of instructor. The seminar deals with legal, philosophical, and psychological issues arising in the context of the doctor-patient relationship. Emphasis on an analysis of the value conflicts underlying and manifested in medical practices and legal policies. Course material is taken from legal, medical, and philosophical literature, legislation, case law, and medical case histories.

Mr. Winslade

**555. Seminar in Critical Legal Theory.** In the last five years a body of legal theory has emerged, here and in Europe, that draws on other radical traditions. The seminar surveys that literature, including the bourgeois legal form, the relation of law and capitalism, the theory of the capitalist state, the meaning of the "rule of law" under capitalism and socialism, and law and ideology. It applies these theoretical insights to concrete issues in contemporary American law (e.g., in torts, contract, labor, family, and criminal law). It concludes with questions of the role of law in the transition to, and under, socialism.

Mr. Abel

**560. Seminar in Law and Management (Agency Law).** Prerequisite: course 230. Recommended: familiarity with economics or the law and economics literature. A brief review of agency law and various aspects of the agency relationship drawing on both legal and nonlegal material. Emphasis on a theoretical consideration of the major aspects of the agency relationship: creation of the relationship, vicarious liability, authority and fiduciary obligation.

Ms. Anderson

**565. Seminar in Legal History: Group Litigation.** The history of the class action suit. The nature of representation, the phenomenon of class conflicts, the tendency of group litigation to escape formal legal norms, the effect of group structure on litigative power.

Mr. Yeazell

**566. Seminar in Administration of Criminal Justice.** Recent American decisions in criminal procedure concerning the rights of persons suspected or accused of criminal offenses are contrasted with the administration of justice in Civil Law legal systems, particularly those of Mexico and Spain. Comparison is made of the reaction by the American judiciary to the crisis of violent crime with that of Spanish law enforcement officials confronted with implementing the nation's new constitution while simultaneously attempting to suppress politically motivated violence. Finally, the gap between theory and practice, particularly in Mexico and Latin America, is considered.

Mr. McGee

**567. Seminar in Antitrust Law.**

Mr. Liebler

**568. Seminar in Political Theory and the Law.** Concentrates on the theory of public choice. Since World War II, much democratic theory had tended to center around two questions: (1) On what basis should it be decided whether a type of decision should be made collectively through the government or individually through the market? (2) In what sense are government institutions "representative"? While some earlier writers such as Edmund Burke and James Madison may be considered, attention focuses on contemporary writers, including David Truman, Anthony Downs, Richard Musgrave, Buchanan and Tullock, Moncur Olson, and Brian Barry.

Mr. Lowenstein

**571. Seminar in Law, Foreign Policy, and National Security.** Various legal considerations and restraints, both national and international, affecting the formulation of foreign policy and protection of national security. The decision making process, including the constitutional balance between the executive and legislative branches, the foreign relations power of the President, the War Powers Resolution and the Treaty Power, as well as the role of bureaucratic politics. Congressional regulation of foreign policy; protecting national security information in a free society and other bill of rights issues; the role of international law affecting national security, including the UN Charter, and multilateral and bilateral arms control obligations.

Mr. Trimble

**572. Seminar in American Legal Education.** Prerequisite: consent of instructor. Law schools as institutions in the legal establishment. Historical development of legal education; teaching methods; law school politics; recruitment of students and faculty; research and publications; class stratification in legal education; testing and evaluation of students and faculty; advanced legal education; comparative legal education; and the curriculum.

Mr. Bergman, Mr. Graham, Mr. Lopez

**573. Seminar in International Regulation of Military Power.** The role of international law in the regulation of the use of force and the containment of military solutions to world problems. The original United Nations' plan, its invocation in resisting aggression, and its role in various peacekeeping ventures. Multilateral and bilateral arms control negotiations (such as the Comprehensive Nuclear Test Ban negotiations and SALT), the role of law in restraining military buildups and in achieving other national security objectives.

Mr. Trimble

**574. Seminar in European Economic Community.** The structures and institutions of the European communities, their lawmaking processes, and administration. The interaction and conflict between community law and national law and the growing role of the European court in mediating between the nations and the communities. The processes of the court and parallels between American constitutional development and that in Europe.

Mr. Rosett

**575. Seminar in Business Planning.** Prerequisites or corequisites: courses 220, 221, and 230. The tax and corporate law aspects of important problems in the life of an enterprise, such as formation of a corporation, compensation of employees, recapitalization, stock redemptions, acquisitions, and corporate divisions.

Mr. Asimow

**576. Seminar in Arms Control and Legal Process.** The role of sanctions and dispute-settlement techniques in arms control agreements. The original plan of the United Nations against the role it has actually played in international peacekeeping. The recent arms control efforts such as the Nuclear Test Ban Treaty, the Nonproliferation Treaty, and SALT, with a view to assessing the potential for enhancing compliance with these through international institutions. Comparison with the experience of the GATT and the IMF, as well as some of the more theoretical literature on the reasons why nations comply with international law.

Mr. Trimble

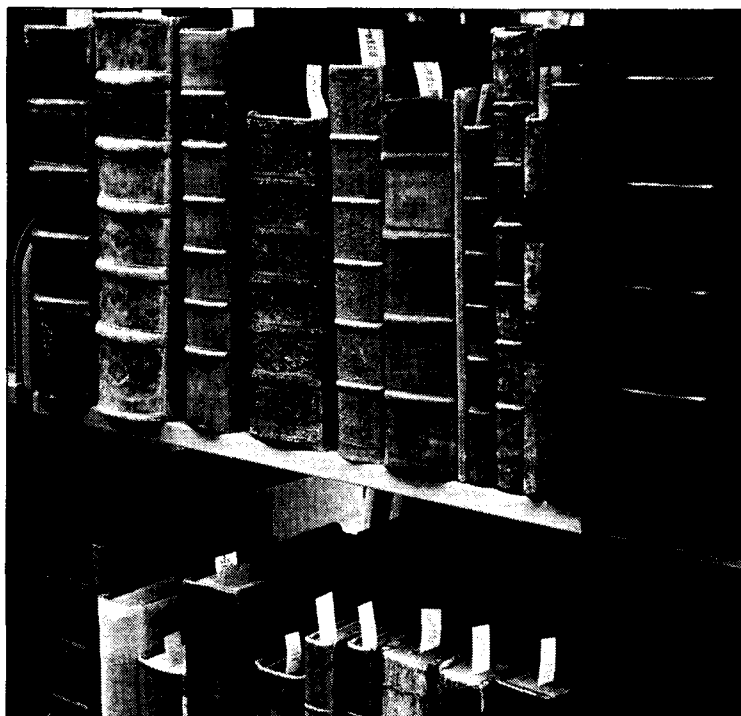
**577. Seminar in Law and the Political Process.** The ways in which the laws governing the political process affect and reflect political power relationships. Statutory reforms enacted in the past 10 to 15 years at the federal and state levels. Right to vote, reapportionment, political parties, bribery, campaign finance, incumbency, ballot propositions, lobbying and conflict of interest.

Mr. Lowenstein, Mr. Welch

# Graduate School of Library and Information Science

**Robert M. Hayes, Dean**

# 11



Our society has become a world of information. Over half of the nation's workforce is now directly engaged in producing, processing, and distributing information in one form or another. Education, scientific and technical development, banking and financial management, government and corporate management — all depend increasingly on accurate, relevant, and readily available information. New technologies have produced a wealth of forms in which we may distribute and transfer information. Printed media have been supplemented by photographic, audiovisual, and computer processible forms. As a result, libraries and information systems of all kinds have become crucial agencies for the management of the resulting flood of information.

The field of library and information science is concerned with the processes involved in these information agencies and, more generally, in the use of information in our society. How are records with essential information, whatever their form may be, to be acquired, preserved, organized, retrieved, and made available? How is information best used in making decisions and in meeting the goals of society as a whole, as well as those of specific organizations?

Education in the field must provide competence with both old and new methods for the processing of information and old and new approaches to the management of libraries, information centers, and information systems in organizations of all kinds. It is this goal to which UCLA's Graduate School of Library and Information Science is dedicated.



# Graduate School of Library and Information Science

120 Powell Library Building,  
825-4351

## Professors

Harold Borko, Ph.D.  
Robert M. Hayes, Ph.D., *Chair*  
Russell Shank, D.L.S.  
Elaine Svenonius, Ph.D.  
Page Ackerman, B.A., B.S.L.S., *Emeritus*  
Robert L. Collison, B.A., F.L.A., *Emeritus*  
Seymour Lubetzky, M.A., LL.D., *Emeritus*  
Lawrence Clark Powell, Ph.D., Litt.D., L.H.D.,  
H.H.D., *Emeritus*  
Robert Vosper, M.A., LL.D., *Emeritus*  
Raymund F. Wood, Ph.D., *Emeritus*

## Associate Professors

Marcia J. Bates, Ph.D.  
John V. Richardson, Ph.D.  
Diana M. Thomas, Ph.D.

## Assistant Professors

Dorothy J. Anderson, Ph.D.  
Christine L. Borgman, Ph.D.  
Donald O. Case, Ph.D.  
William H. Fisher, Ph.D.

## Senior Lecturers

Elizabeth R. Baughman, M.L.S., M.A.  
Elizabeth R. Eisenbach, M.L.S.  
Betty Rosenberg, M.A., *Emeritus*

## Visiting Professors

Abraham Bookstein, Ph.D.  
David G. Vaisey, M.A.

## Adjunct Assistant Professors

Mary Greco, Ph.D.  
Joseph J. Lauer, Ph.D.

## Adjunct and Visiting Lecturers

Jennifer Abramson, M.L.S., *Adjunct*  
Diane Bisom, M.L.S., *Adjunct*  
Alison Bunting, M.L.S., *Adjunct*  
Richard Chabran, M.L.S., *Adjunct*  
Patricia Chittenden, M.L.S., *Visiting*  
Jon Greene, M.L.S., *Adjunct*  
Frank Houdek, J.D., M.L.S., *Visiting*  
Teresa L. Jacobsen, M.S.L.S., *Adjunct*  
Linda Katsouleas, M.L.S., *Visiting*  
Julie Kwan, M.L.S., *Adjunct*  
Holly Millard, M.L.S., *Visiting*  
Constance W. Nyhan, M.L.S., *Adjunct*  
James Palmer, M.L.S., *Adjunct*  
Teresa Portilla, M.L.S., *Adjunct*  
Mary I. Purucker, M.L.S., *Visiting*  
Lise Snyder, M.L.S., *Adjunct*  
Roberta Walters, M.L.S., *Adjunct*  
Marie Waters, M.L.S., *Adjunct*

Applicants may write to the Graduate School of Library and Information Science, 120 Powell Library Building, UCLA, Los Angeles, CA 90024, for the school's announcement and application materials.

## Degrees Offered

Master of Library Science (M.L.S.)  
Post-M.L.S. Certificate of Specialization  
Ph.D. in Library and Information Science

## Master of Library Science

### Admission

Students are admitted in Fall Quarter only. In addition to Graduate Division requirements and application procedures (see Chapter 3), the school requires:

- (1) A statement of purpose.
- (2) An application for admission provided in the school's announcement.
- (3) A report of an interview by the Dean of the school or by a person designated by the Dean as qualified to conduct the interview.
- (4) An official report of a score on the Graduate Record Examination taken within the past five years. Applicants must have passed the General Aptitude Test of the examination with a minimum combined score (verbal and quantitative) of 900.
- (5) Three letters of recommendation.
- (6) Satisfaction of the following entrance requirements: (a) a statistics requirement, satisfied by completing a college-level course with a minimum grade of C; (b) 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 school; (c) reading knowledge of a foreign language, which may be met by completing three quarters or two semesters of study in the language with minimum grades of C or by passing the Graduate School Foreign Language Test (GSFLT) with a minimum score of 500. The school will accept the passing of a foreign language test administered by another UCLA department that meets that department's graduate degree requirements or, for languages not covered by the GSFLT, the passing of a reading test supervised by the appropriate UCLA foreign language department.

The Dean may permit postponement of one or more of these requirements, but completion of these courses at a later time may represent a serious work overload for the new student. In

any case, all requirements must be completed before beginning your fourth quarter of residence.

Applicants not meeting the required grade-point average of 3.0 may be admitted in exceptional cases if GRE scores, letters of recommendation, or other factors indicate unusual promise. While work experience is not a requirement for admission, consideration will be given to such experience in reviewing the total application.

### Course Requirements

You 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 if you are working in a library or information center.

Eighteen courses are required for graduation from the M.L.S. program. 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 Library and Information Science 400, 402, 410, 411, 420, 421, 430, 441. In certain cases, prior coursework or work experience may justify replacing a course by a validation examination administered by the school, but this is not encouraged and should be used only for the purpose of increasing the extent to which you pursue a specialization.

Only in unusual cases will 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 librarianship, bibliography, or information science. The field of specialization and the specialized course program must be approved by a faculty adviser. The requirement ordinarily is met by the completion of ten additional courses in the school and/or in other departments.

During the second year, you may apply for an internship of one to three quarters either on campus or off campus at a 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 mini-

minimum requirements of the Graduate Division. In order to enroll in any S/U graded course, including 500-series courses, you must be in good academic standing.

### **Comprehensive Examination Plan**

A written comprehensive examination, which is offered in Fall, Winter, and Spring Quarters, is required. The examination is designed to demonstrate your understanding of library and information science services as a totality. It does not cover the basic professional competencies individually; rather, it deals with the field in a unified form.

In order to be eligible to take the comprehensive examination, you must first complete a paper or project in the area of your specialization, which demonstrates a considerable amount of work and thought and is of publishable quality. The paper or project is required even if you have an advanced academic degree in which a thesis or dissertation was a requirement and must be approved by your faculty adviser.

### **Cooperative Degree Programs**

To participate in a cooperative program, you must make application to and be admitted by both this school and the other UCLA school or department. Fulfilling the combined set of program requirements normally takes three years.

### **M.A.-History/M.L.S.**

This concurrent degree program of the Graduate School of Library and Information Science and the Department of History allows you to combine historical study with the tools of the information professional and to obtain two degrees — the M.L.S. and the M.A. in History. The best sequence of coursework should be discussed with the advisers from this school and the History Department.

### **M.A.-Latin American Studies/M.L.S.**

This specialization is an articulated degree program of the Graduate School of Library and Information Science and the Latin American Studies Program. You can obtain two degrees — the M.L.S. and the M.A. in Latin American Studies. The program provides broad training in library and information science, as well as the opportunity to explore and analyze on an advanced level the social, political, and cultural issues characteristic of Latin American societies.

### **M.B.A./M.L.S.**

A concurrent degree program jointly sponsored by the Graduate School of Library and Information Science and the 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. Students should request all application materials from the M.B.A. Admissions Office, Graduate School of Management.

### **Post-M.L.S. Certificate of Specialization**

The Post-M.L.S. Certificate of Specialization Program meets the need for specialized training in various areas of librarianship, information science, and bibliography, as well as research competence.

Admission requirements vary slightly for each field of specialization, but the basic requirements are a bachelor's (or higher) degree in letters and science, an M.L.S. degree from an ALA-accredited school, and unconditional admission to graduate standing by the UCLA Graduate Division.

Your course program may begin in any quarter of the academic year. If you are admitted for a preliminary quarter to complete prerequisite courses, that quarter will not be counted in the minimum residence requirements.

Part-time enrollment is encouraged to provide flexibility for the working librarian. Opportunities for relevant coursework outside the department, and internships, both on and off campus, will be made available.

Three general areas of specialization have been authorized: librarianship, bibliography, and information science. Further specialization within these fields is possible. A minimum of nine courses (100-, 200-, 400-, and 500-series) must be completed in the Graduate School of Library and Information Science and other departments of the University.

In addition to taking coursework in your area of specialization, you must complete a paper or project in that area, which demonstrates a considerable amount of work and thought and is of publishable quality. The specialization paper or project is required even if you have an advanced academic degree in which a thesis or dissertation was a requirement and must be approved by your faculty adviser.

### **Ph.D. Degree**

#### **Admission**

In addition to Graduate Division requirements and application procedures, the school requires:

(1) A master's degree or the equivalent from an institution of recognized standing, representing academic preparation equivalent to that required for a comparable degree from the University of California.

(2) Evidence of basic professional competence. This would be satisfied by an M.L.S. degree from a program accredited by the ALA or by completing Library and Information Science 400, 402, 410, 411, 420, 421, 430, 441.

(3) Satisfaction of the same entrance requirements as listed in item 6 under the M.L.S. degree.

(4) A statement of purpose which identifies your proposed area of specialization, accompanied by appropriate evidence of qualifications for pursuing a doctoral program.

(5) A total score of 1200 or better on the GRE Aptitude Test, with at least 500 in each of the two parts (verbal and quantitative). The examination must have been completed within five years prior to application for admission.

(6) Three letters of recommendation.

(7) Interviews with two faculty members of the school.

(8) An application for admission provided in the school's announcement.

While work experience in a library is not a requirement for admission, consideration will be given to such experience in evaluation of candidates.

### **Major Fields or Subdisciplines**

You are expected to specialize in a subfield in one of three major fields:

(1) Information storage, organization, and retrieval.

(2) Communication and information transfer.

(3) Libraries and other information organizations.

The school strictly limits the specific subfields which, at any time, will be accepted for doctoral work.

### **Course Requirements**

No courses are required for the Ph.D. other than those for admission. However, you normally take Library and Information Science 272 several times, as well as a variety of other courses, both inside and outside the school, relevant to your individual program.

### **Qualifying Examinations**

You are 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. These will be scheduled during one week in a quarter. If you fail one of the sections of the three-part examination, it may be repeated. Should you fail two or three sections, all three must be repeated.

After passing the written examinations, you are required to pass the University Oral Qualifying Examination, which is based on your dissertation proposal.

You are encouraged to start work on your proposal while taking courses in preparation for the written qualifying examinations. The proposal should, in most cases, be completed at the same time or soon after the completion of the written examinations, but it must be completed and accepted within two years after passing the written examinations.

The oral examination will cover the methodology and feasibility of your research, as well as the depth of your knowledge in the specific field of your proposed dissertation research.

Your doctoral committee will decide, after the oral examination, whether the proposal is accepted as written, is accepted with modification, or is not accepted. The committee also will decide whether the oral examination has been passed. If the proposal is not accepted, the examination may not be passed.

## Dissertation Research and Final Oral Examination

The third formal requirement of the program is that you research, write, and defend a dissertation. The required final oral examination will be administered by members of the doctoral committee, who will also evaluate the dissertation.

## Upper Division Courses

**110. Information Resources and Libraries.** Prerequisite: sophomore standing or consent of instructor. Not open for credit to M.L.S. students. Provides an introduction to bibliographic and information resources and relevant research methodology. Covers 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-111D. Ethnic Groups and Their Bibliographies.** Introduction to bibliographical and research tools and methods for students with interests in ethnic groups. **111A** is concerned with American Indian history and culture; **111B** with Afro-American history and culture; **111C** with Latino history and culture; and **111D** with Asian American history and culture. Sections on other ethnic groups may be added. Offered in collaboration with the several centers for ethnic studies. May not be repeated for credit.

**140. Computer Programming for Library Operations and Services.** Lecture, one hour; laboratory, three hours. Prior knowledge of computers, programming, or MARC is not required. Introduction to programming languages suitable for librarians, students of language and literature, and similar disciplines. Concepts of text manipulation, file handling, and storage management are emphasized. Programs and examples emphasize processing of textual materials and bibliographic records (including Library of Congress MARC records). Practical experience with computers in processing such records.

## Graduate Courses

**205. Historiography of Librarianship, Bibliography, and Information Science.** Prerequisite: consent of instructor. Identification of historical source material. Comprehensive and critical review of the historical and biographical literature. Identification of areas in need of research or reinterpretation.

**206. Seminar on Library History.** Prerequisite: consent of instructor. Special studies in biography and history of librarianship. Relationships to contemporaneous social, cultural, and intellectual history. Research papers on topics identified in course 205.

**207. Seminar on International and Comparative Librarianship.** Prerequisite: consent of instructor. Library development and service patterns in European and other countries; comparisons of these with librarianship in the United States. International library organizations and programs.

**210. Seminar in Descriptive and Bibliographical Cataloging.** Prerequisites: courses 410 and 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 in Subject Control of Library Materials.** Prerequisites: courses 410 and 411, or equivalent. Study of selected problems in the design and use of verbal headings and classification systems. Manual and mechanized systems. May be repeated once.

**213. Seminar on Indexing.** Prerequisite: consent of instructor. Development of basic concepts as reflected in the history of scholarship. Current problems in the transition from individual to large-scale indexing projects. Contribution made by automation. Future of mechanized indexing. Trend toward international standardization. Acceleration systems in indexing.

**214. Seminar on Abstracting and Abstracting Services.** Prerequisite: consent of instructor. Historical background and current situation, particularly in science and technology. Possibilities and present limitations of automation. Role in coordination of information services. Problems of standardization to achieve international coordination. Influence of changing needs.

**221. Bibliography of Science, Engineering, and Technology.** Prerequisites: courses 420 and 421. Scientific and technical literature, with emphasis on special types of publications, research material, reference and bibliographical aids to the physical sciences. Importance, purpose, and nature of technical literature searches. Flow of information among scientists.

**222. Bibliography of the Health and Life Sciences.** Prerequisites: courses 420 and 421. Literature of the medical and life sciences: reference and bibliographical works; periodicals and other serials; abstracting and indexing services; audiovisuals; notable books in the history of the biomedical sciences; organization of the literature; patterns of publication; applications of technological developments in the control of the biomedical literature.

**223. Literature of the Social Sciences.** Prerequisites: courses 420 and 421. Seminar on the literature of the social sciences, including a review of the classics in the various fields, monumental source collections, periodicals, bibliographies, catalogs, indexes, abstracts, bibliographic and nonbibliographic data bases, etc. Trends in scholarly and popular writing. Interdisciplinary nature of the literature.

**224. Literature of the Humanities and Fine Arts.** Prerequisites: courses 420 and 421. Seminar on the literature of the humanities and fine arts, including a review of the 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.) The course acquaints students with general and specialized materials in fields concerned with Latin American studies. Library research techniques provide the experience and competency required for future bibliographic and research sophistication as the basis for enhanced research results.

**228. Legal Bibliography.** Prerequisite: consent of instructor. An introduction to the source materials of the law, with emphasis on primary authority, but covering as well secondary authority and the indexes and finding aids which the lawyer and professional law librarian use to gain access to legal information.

**229A. Afro-American Bibliography.** Prerequisite: consent of instructor. Resources for the study of Afro-American history, culture, and literature. Problems of identification, description, subject analysis. Bibliographical and reference apparatus.

**M229B. Africana Bibliography and Research Methods.** (Same as African Area Studies M229B.) The course explores the problems and techniques of research methodologies related to Africana studies. Emphasis on relevant basic and specialized reference materials, using the full range of available information resources, including library collections of books, serials, and computerized data bases.

**230. History of Publishing and the Book Trade.** 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.

**231. Contemporary Publishing and the Distribution of Information.** Prerequisites: course 430 and consent of instructor. An in-depth examination of the publishing and distribution of information in contemporary society, most particularly as it relates to libraries. Historical, cultural, and economic factors. Creation of library materials (role of the author, editor, agent). Production and manufacturing. Marketing and promotion. Types of publishers. Structure and organization of publishing firms. Economics of the publication industry. Libraries, publishers, and information distribution—the current scene and future prospects.

**240. 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: a course in research methods. Recommended: a course in library automation. The course looks at information systems and services from the points of view of their cost and effectiveness in meeting desired objectives. Principles of costing are briefly reviewed, the bulk of the course being given over to a study of the literature in which measures have been developed to evaluate the 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.** Prerequisite: course 240. Survey of principal vocabularies, methods of file organization, and search strategies in the control of publications in mechanized form.

**243. Human/Computer Communication.** Surveys issues relating to human/computer communication. The role of the computer in society, psychological aspects of user behavior, and applications of interactive computer systems are considered for their significance to systems design and user training. Students perform several on-line assignments and write a term paper on one of the topics covered in the course.

**249. Seminar on Special Topics in Information Science.** Prerequisite: course 404 or consent of instructor. Content varies from quarter to quarter to allow emphasis on specialized topics in information science, such as vocabulary development, file organization, searching procedures, indexing and classification, bibliographic and linguistic text processing, and measures of relevance and system effectiveness. May be repeated for credit by consent of instructor.

**251. Reading and Reading Interests.** Interests of the common reader, excluding children, with special reference to types of library patrons. Fiction and subject categories, popular and standard: philosophy, religion, social sciences, art, music, literature, history, science. Influence of paperbacks, best sellers, and current interest books on reading habits.

**253. Reading Interest of Children.** Recommended prerequisite: English 112 or equivalent. Reading interests and correlative types of literature surveyed with reference to the growth and development of children. Emphasis on the role of the librarian in responding to the needs and abilities of children through individualized reading guidance.

**260. Historical Bibliography.** Early records and the manuscript period; history of the printed book and of periodical publications and newspapers, including materials, methods, and production. Parallel history of scholarship, the book trade, and book collecting in ancient, medieval, and modern Western civilization.

**261. Analytical Bibliography.** Recommended (but not prerequisite): course 260 or equivalent in background or experience. History and methods of analytical bibliography, with emphasis on recent scholarship. The book as a physical object and its relationship to the transmission of the text. Emphasis on handpress books. Theories of Bradshaw, Proctor, Greg, McKerrow, Pollard, Esdaile, Bowers, Stevenson, Hinman, McKenzie, and others.

**262. Seminar on Historical Bibliography.** Prerequisite: course 260 or consent of instructor. Special studies in the history of books and publishing. Topics vary from quarter to quarter to allow emphasis on a particular historical period, geographical area, or other specific aspect, such as a form of publication, genre, or material of production (e.g., paper or type). May be repeated for credit by consent of instructor.

**271. Seminar on Intellectual Freedom (2 units).** Prerequisite: consent of instructor. Investigation of the idea of intellectual freedom: historical and constitutional bases; civil liberties and civil rights; censorship and other restraints on freedom of speech, the press, the arts, and access to ideas and information. S/U grading.

**272. Research Seminar in 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.

**280. Information Seeking Behavior.** Study of the 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 (2 units).** Prerequisites: courses 420 and 421, or consent of instructor. An introduction to the information needs of the business world. Encyclopedias, directories, yearbooks, indexes, loose-leaf services, government publications, data bases, and other sources of business literature are discussed.

**282. Records Management (2 units).** Principles of records control from creation to disposition. Course is designed as an overview of records and information management to make students aware of the information processing problems of business and how a coordinated records and information management program can improve information access and utilization.

**290. Research Methodology (2 or 4 units).** 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. A teaching apprenticeship under the 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. The Information Professions.** Provides a historical and comparative overview of the information professions and the functions of libraries and information centers in society. The unity of librarianship and information science is highlighted through discussions of computer applications to information storage and retrieval systems, natural language text processing, and the automation of various library processes.

**402. Fundamentals of Bibliography.** The development and fundamentals of the several branches of bibliography: historical, physical (analytical or critical, descriptive), enumerative, or systematic; and the organization, control, and elements of bibliographical apparatus. New techniques and tools, theory, methods, and trends in bibliographical research in relationship to librarianship.

**405. Automation of Library Processes.** Prerequisite: basic knowledge of a programming language, preferably PL/1 or IBM System 360 assembly language. Principles of application of data processing techniques to library procedures. Problems in the design, implementation, and testing of mechanized systems for libraries. Study of programming languages for library applications, with emphasis on PL/1.

**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.

**411A. Introduction to Subject Access: Alphabetical-Subject Indexing (2 units).** (Formerly numbered 411.) Lecture/discussion, four hours (five weeks). Prerequisite: course 410. Overview of the major alphabetical-subject indexing languages and their use in manual and on-line environments, including theory and application of the Library of Congress subject headings.

**411B. Introduction to Subject Access: Systematic Indexing (2 units).** (Formerly numbered 411.) Lecture/discussion, four hours (five weeks). Prerequisite: course 410. Overview of the major systematic subject indexing languages and their use in manual and on-line environments, including the theory and application of the Dewey decimal and Library of Congress classifications.

**411C. Introduction to Subject Access: Thesaurus Construction (2 units).** (Formerly numbered 411.) Lecture/discussion, four hours (five weeks). Prerequisite: course 410. Overview of major thesauri in use in manual and on-line environments. Emphasis on their construction and evaluation and the principles underlying their design.

**412. Cataloging and Classification of Nonbook Materials.** Prerequisites: courses 410 and 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. Principles of Indexing and Abstracting.** Basic professional techniques, concepts, and methods of indexing monographs, serials, and specialized materials, of preparing informative and indicative abstracts, and of analyzing secondary abstracting and indexing services as library reference tools.

**420. Information Resources and Services I.** History, methods, and materials of information services. Analysis and evaluation of devices for bibliographical control of information. Systems of national and trade bibliography (U.S. and foreign), indexing, abstracting, etc. Fact books, handbooks, directories, almanacs, encyclopedias, yearbooks.

**421. Information Resources and Services II.** Prerequisite: course 420. Additional sources of information: dictionaries; biographical, geographical, and statistical sources; government documents. Special types of information service and service in different types of libraries and information centers. Evaluation of sources and services: standards. Economic aspects of service.

**425. Computer-Based Information Resource Data Bases.** Prerequisites: courses 420, 421. Emphasizes the use of reference and resource data bases. File structure and hardware requirements are reviewed. Included are analyses of the information needs of scientists and business/labor, coupled with investigations into specific data bases addressing those needs.

**429. Printing for Bibliographers.** Prerequisites: course 260 or 261 and 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. Selection and Acquisition of Library Materials.** Background of publishing and the book trade (new and antiquarian) pertinent to acquisitions departments of public, school, academic, and special libraries. Theory and practice of selecting and ordering books and other materials. Organization and administration of acquisitions departments.

**431. Special Problems in the Selection of Materials and Evaluation of Collections.** Prerequisite: course 430. Subject and area collecting; special collections and rare books; building new collections. Evaluating and weeding collections. Cooperative collecting — regional, national, and international. Storage centers; subject specialization. Special format materials: films, maps, sound recordings, etc. Copying methods; facsimile reprinting; changing character of research collections.

**432. Media Librarianship.** Prerequisite: consent of instructor. Films, filmstrips, recordings, tapes, and other nonbook materials in audiovisual collections or instructional media centers. Bibliographical apparatus. Evaluation and collection development. Organization and administration.

**441. Management of Libraries.** Prerequisite: consent of instructor. Principles of management, emphasizing management techniques applicable to libraries of various types and to library systems. Special attention to the management of human as well as technical resources.

**442. Library Personnel Administration.** Covers the basic principles of personnel management. Provides a survey of current personnel practices in libraries. Discusses how the basic principles apply or need to be modified to fit the library setting.

**444. Information Networks.** Problems in the formulation, funding, and operation of information networks. A survey of some of the major networks, including institutional and computer systems.

**446. Library Services for Youth.** Provides an overview of programs and services which are of interest to young adults (12 to 18 years old). Discusses special problems in working with young people and the psychology of the teenager as it influences library programs.

**447. Library Space Planning.** Introduction to space planning and programming techniques and how they apply to libraries. Emphasis on use of existing space, but planning new buildings is included. Reading blue prints, use of scales, contracts, use of consultants.

**461. College, University, and Research Libraries.** Organization, administration, collections, facilities, finances, and problems of college and university libraries and their relationships within the institutions of which they are a part. Functions of research libraries and work of their staffs in serving scholars.

**463. Public Libraries.** The government, organization, and administration of municipal, county, and regional public libraries; developments in the changing patterns of public library service.

**464. School Libraries.** Elementary and secondary school libraries as multimedia instructional materials centers. Relationships of school libraries to school programs and curricula. Emphasis on administration, planning materials, services, and equipment.

**465. Library Services and Programs for Children.** Philosophy and objectives of children's services in public and school libraries. Emphasis on services to groups and techniques of program planning which incorporate storytelling, puppetry, nonprint media, etc.

**466. Storytelling to Children and Adults, Oral Interpretation of Literature.** Practical storytelling to children and adults in various situations, with emphasis on the folktale, and oral interpretation with emphasis on modern imaginative literature. Readings and discussion of the function of folklore and fantasy in literature, society, child development, and library programming. Students are required to choose, learn, and tell stories in class and in a library or community setting and to read stories aloud.

**467. Seminar on Current Topics in Public Library Administration.** Prerequisite: course 463 or consent of instructor. Special studies in public librarianship, with strong emphasis on techniques and problems of public library administration. Topics, which vary to allow in-depth examination of current issues and individually selected concerns, emphasize those aspects of management which are distinctive of public libraries. Particular attention to funding and budgetary matters, the impact of new technologies, and the marketing of public library services.

**470. Special Libraries and Special Collections.** 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.** Organization, administration, services, and problems of health and life sciences libraries; relationships with institutions of which they are a part and with the community. Several field trips are scheduled.

**472. Law Librarianship.** Prerequisite: consent of instructor. An introduction to the profession of law librarianship; the organization of the professional associations and their activities; the character and distribution of law libraries throughout the United States; the distinctive characteristics of law library problems and their solutions.

**473. Government Information.** Introduction to the nature and scope of government information promulgated by the federal government, as well as by the 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 (2 units).** (Formerly numbered 487A.) Provides information for administration of conservation programs and decision making in the preservation of library materials. Topics include history of paper production and book structure in relation to the present endangerment of library materials; past and current practices in library storage, retrieval, and use; environmental controls, housekeeping; binding standards; collection processing and handling; rare book curatorship; microfilming; cooperative conservation programs; conservation ethics; disaster preparedness and recovery.

**487A-487Z. Special Studies in Library and Information Science (2 to 4 units).** 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.:

**487C. Advanced Legal Bibliography.** Examination of legal materials and research techniques not covered in course 228. Included are current and historical English legal materials, foreign and international law sources, administrative law materials, and special subject areas such as taxation, labor, securities, anti-trust. Special emphasis on legislative history sources and research techniques and computer-assisted legal research. New legal research techniques and tools are evaluated.

**487D. Seminar on Current Issues in Librarianship.** (Formerly numbered 272.) Prerequisite: consent of instructor. Identification, analysis, and discussion of critical issues currently facing the profession. May be repeated once.

**489. Library Service to Special Population Groups.** Prerequisite: consent of instructor. Special problems encountered by school, public, academic, special, and research libraries in meeting the needs of minority groups in urban and rural settings. Library service to the aging, the physically handicapped, and the institutionalized population.

**490. Professional Communication (2 units).** The course is designed to increase librarians' sensitivity to language in different contexts. Students explore the range of stylistic and syntactic options open to them for presenting proposals, reports, and research results. Such study covers all aspects of professional communications: written, oral, and visual, including computer-generated. S/U grading.

**491. Interpersonal Communication for Librarians and Information Scientists.** 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.

**495. Training and Supervision of Teaching Assistants (2 units).** Hours to be arranged (twenty hours per quarter). Prerequisite: appointment as a teaching assistant or Extension Division instructor. Orientation, preparation, and supervision of graduate students who are involved in the teaching of an undergraduate or Extension course. Syllabus revision and materials preparation. Classroom observation. S/U grading.

**497. Fieldwork in Libraries or Information Organizations.** Supervised field experience in an 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. UCLA Internship.** Prerequisite: consent of instructor. Supervised professional training in one or more departments or units of the UCLA Library System or other University information centers. Minimum of 120 hours per quarter, including weekly critiques of bibliographical, administrative, and service problems. May be repeated twice. S/U grading.

**499. Off-Campus Internship.** Prerequisite: consent of instructor. Supervised professional training in a library or information center approved by the faculty of the school. Minimum of 120 hours per quarter, including weekly critiques of bibliographical, administrative, and service problems. 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 the 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.

# Graduate School of Management

J. Clayburn La Force, Dean



# 12

Because the world is changing rapidly and unpredictably, today's professional manager must learn the concepts and principles of management that make adjustments to new conditions possible. At the UCLA Graduate School of Management (GSM), consistently ranked among the best in the nation, people prepare to become first-rate managers with 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 in the private, public, and not-for-profit sectors.

GSM's specific objectives, then, are to train professionals who have these qualities, to offer the business community a wide range of continuing education programs providing state-of-the-art information in a variety of fields, and to advance the art and science of management by engaging in, and educating scholars capable of conducting, basic research designed to study fundamental issues and implement a new knowledge.

Students come to GSM from a variety of professional and educational backgrounds; their career goals are as diverse as the business and nonprofit communities themselves. Whether they choose to pursue the professional M.B.A., the academic M.S., or a Ph.D. in Management, they will 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.



# Graduate School of Management

3250 Graduate School of Management, 825-7935

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 Elwood S. Buffa, Ph.D. (*Times Mirror Professor of Management Strategy and Policy*)  
 Joseph D. Carrabino, Ph.D., P.E. (*Organization and Strategic Studies*)  
 Fred E. Case, D.B.A. (*Urban Land Economics*), Chair  
 Samuel A. Culbert, Ph.D. (*Behavioral and Organizational Science*)  
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 Eric G. Flamholtz, Ph.D. (*Accounting-Information Systems; Human Resource Management and Industrial Relations*)  
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 Glenn W. Graves, Ph.D. (*Management Science*)  
 Martin Greenberger, Ph.D. (*IBM Professor of Computers and Information Systems*)  
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 James R. Jackson, Ph.D. (*Management Science*)  
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 J. Fred Weston, Ph.D. (*Warren C. Cordner Professor of Money and Financial Markets; Business Economics; Finance*)  
 Harold M. Williams, J.D.

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 Bradford Cornell, Ph.D. (*Finance*)  
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 Richard A. Goodman, D.B.A. (*Organization and Strategic Studies*)  
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 Dominique M. Hanssens, Ph.D. (*Marketing*)  
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 E. Burton Swanson, Ph.D. (*Computers and Information Systems*)

## Assistant Professors

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 Jay B. Barney, Ph.D. (*Organization and Strategic Studies*)  
 Paul J. Beck, Ph.D. (*Accounting-Information Systems*)  
 David M. Boje, Ph.D. (*Behavioral and Organizational Science*)  
 Gregory S. Carpenter, Ph.D. (*Marketing*)  
 Imran S. Currim, Ph.D. (*Marketing*)  
 Mark S. Grinblatt, Ph.D. (*Finance*)  
 Patricia J. Hughes, M.B.A., Acting (*Accounting-Information Systems*)

Sanford M. Jacoby, Ph.D. (*Human Resource Management and Industrial Relations*), Chair  
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 Wayne Landsman, Ph.D. (*Accounting-Information Systems*)  
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 Ella Mae Matsumura, M.Sc., Acting (*Accounting-Information Systems*)  
 Robert J. Meyer, Ph.D. (*Marketing*)  
 Kent Nakamoto, M.A., M.S., Acting (*Marketing*)  
 John-Christopher Spender, Ph.D. (*Organization and Strategic Studies*)  
 Sheridan D. Titman, Ph.D. (*Finance*)  
 Brett M. Trueman, Ph.D. (*Accounting-Information Systems; Finance*)  
 Robin M. Wagner, Ph.D. (*Accounting-Information Systems*)  
 William M. Zumeta, Ph.D. (*Public/Not-for-Profit Management*)

## Lecturers

Joan K. Lasko, Ph.D., Visiting  
 Warren H. Schmidt, Ph.D., Emeritus Senior

## Adjunct Associate Professor

Marvin M. May, Ph.D.

## Adjunct Assistant Professor

Ernest J. Scalberg, Ph.D.

## Adjunct and Visiting Lecturers

William H. Broesamle, M.B.A., Visiting (*Management Science*)  
 Jason L. Frand, Ph.D., Adjunct  
 Patricia O. Katsky, Ph.D., Adjunct  
 Edward V. Sedgwick, Ph.D., Visiting

## Field Program Supervisors

Arlene Chambers, M.B.A., Associate  
 Janis Forman, Assistant

The UCLA Graduate School of Management 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. A Ph.D. in Management is also offered, as are a certificate Executive Program and research conferences and seminars for experienced managers. For information about these programs, call 825-7935.

The school does not offer an undergraduate major in management; however, several undergraduate courses in management are offered. Enrollment in Management 120, 122, 124, 130, 133, and 140 is open only to students in the Economics/Business program (see

Chapter 5 for details on this program). Enrollment in other courses, although open to all University students who have completed the prerequisites, is limited, and non-GSM students are advised not to count on gaining admission to them in order to meet the requirements of other departments or programs.

### Degrees Offered

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

## Master of Business Administration

The two-year, full-time program leading to the Master of Business Administration (M.B.A.) degree is designed to prepare managers for business enterprises and for public/not-for-profit organizations. A part-time version of the program is available for a limited number of fully employed students, who must be able to attend classes scheduled between the hours of 4 and 10 p.m. at least two days a week.

The program aims to develop general management perspectives and knowledge while imparting expertise in student-selected fields of specialization. Along with mastery of subject matter, the M.B.A. program stresses integrating the lessons of various academic disciplines and functional fields, translating theory into practice, questioning the past and planning for the future, and self-guided learning as a continuing basis for effective managerial work.

### Admission

Although no specific undergraduate major is required for entrance, you must complete elementary algebra and differential calculus before entering the M.B.A. program. You are required to take the Graduate Management Admission Test (GMAT). Any questions about the GMAT should be addressed to the Educational Testing Service, Box 966-R, Princeton, NJ 08541, (609) 883-8519 (the local phone number in Los Angeles is 254-5236).

Foreign applicants who hold degrees from universities or colleges where English is not the primary language are required to take the Test of English as a Foreign Language (TOEFL).

You must complete the M.B.A. Application, which includes the application for admission to graduate standing. Admission is for the Fall Quarter only; completed applications, with full documentation, must be filed with GSM by March 15. Applicants for the arts management program must specify their wish to be considered for admission in that field.

Consideration is given to your 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 letters of recommendation. Preference is given to applicants who have had full-time management-related work experience since completing their bachelors' degrees. Students admitted directly from baccalaureate programs who choose to work before entering graduate school will have their admission honored for three years.

Small group information sessions are offered by the M.B.A. Admissions Office several days a week from July through mid-March on an appointment basis. Call 825-8874 to arrange attendance.

Applications and information about the M.B.A. program are available in the M.B.A. Program Office, 3371 Graduate School of Management, UCLA, Los Angeles, CA 90024.

### Areas of Study

Accounting/information systems; arts management; behavioral and organizational science; business economics; computers and information systems; finance; human resource management and industrial relations; international business and comparative management; management science; marketing; organization and strategic studies; production and operations management; public/not-for-profit management; urban land economics.

### Course Requirements

The four required elements of the M.B.A. program are the nucleus, the management core, the area electives, and free electives, totaling at least 24 courses (96 units). The nucleus develops professional problem solving and decision making skills through experiences ranging from laboratory simulations to consulting projects in ongoing organizations. Management core subjects cover the fundamentals of disciplines which underlie the practice of management. The area of study (area electives) provides specialized knowledge and skills for a particular field of management work. Free electives permit students to pursue additional subjects of personal interest.

**Nucleus:** The nucleus is a series of three required courses that develops those interpersonal and decision making skills essential to the practice of management. The first-year nucleus course (Management 440) utilizes experiential teaching methods to guide students in defining problem solving skills from a personal perspective.

The second-year portion of the nucleus consists of a two-quarter management field study project in which teams of four or five students serve as management consultants to business

firms or other organizations. Conclusions are summarized in a report which serves in lieu of a thesis or comprehensive final examination for the members of the team. The field study is judged by standards applicable to professional management consulting.

**Management Core:** The management core consists of ten courses on subjects basic to the practice of management. It is divided into three parts: five courses in management, including Management 402, 403, and three courses from 404, 405, 406, 407; three courses in functional fields selected from 408, 409, 410, 411; and two courses in management processes (Management 412 and 420).

**Area Electives:** These focus on one or more fields of specialization within the broad realm of management. Students design programs of study to meet their specific academic needs and professional goals. Eight area electives are required, and you are encouraged to emphasize two or more areas of study.

**Free Electives:** You must select at least three free electives, subject only to general University regulations. These electives normally must be taken while enrolled in the program. They may support or complement the remainder of your program of study.

A maximum of two four-unit 596 courses may be applied toward the 96-unit requirement.

### Extracurricular Activities

There are a variety of student organizations which promote both professional competence in many areas and the development of contacts among students, alumni, faculty, and business executives. Many opportunities are presented for students to become involved in planning events with executives in both the public and private sectors, to participate in day-long programs at various organizations, and to meet with company representatives and alumni. Extracurricular activities are an integral part of life at GSM, and all students are encouraged to participate.

## Cooperative Degree Programs

### J.D./M.B.A.

The School of Law and the 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.

### M.S.-Computer Science/M.B.A.

The 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. Students should request all application materials from the M.B.A. Admissions Office, Graduate School of Management.

### M.L.S./M.B.A.

A concurrent degree program jointly sponsored by the Graduate School of Library and Information Science and the 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. Students should request all application materials from the M.B.A. Admissions Office, Graduate School of Management.

### M.P.H./M.B.A.

The Graduate School of Management and the School of Public Health, Division of Health Services, 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 have recognized the increasing challenges facing managers in the health care industry and the need for individuals who are skilled in dealing with these challenges. Students should request all application materials from the M.B.A. Admissions Office, Graduate School of Management.

### M.A.-Latin American Studies/M.B.A.

The Graduate School of Management and the Latin American Studies Program jointly sponsor a 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. Students should request application materials from the M.B.A. Admissions Office and the Latin American Studies Program.

### M.A.-Architecture and Urban Planning/M.B.A.

The Graduate School of Management and the Graduate School of Architecture and Urban Planning 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. Students should request all application materials from the M.B.A. Admissions Office, Graduate School of Management.

### Executive M.B.A. Program

Designed for mid-career managers with strong records of achievement, the Executive M.B.A. Program enables executives to obtain high quality advanced management education while continuing in their full professional roles. The program is limited to 50 participants with superior academic records and a minimum of eight years of combined work and managerial experience.

The intensive 21-month course of study leads to a regular M.B.A. degree. The emphasis is on general management training; increased competence in management specialties, organizational and interpersonal skills; and sophisticated understanding of the integration of businesses and their environments.

Classes are held at GSM on alternating Fridays and Saturdays, with three five-day, off-campus residential sessions at the beginning, middle, and end of the program. Further information and application materials may be obtained by writing to the Assistant Dean, Executive M.B.A. Program, Graduate School of Management, UCLA, Los Angeles, CA 90024.

### M.S./Ph.D. Programs

#### Admission

All applicants are required to take the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE). Foreign applicants who hold a degree from a non-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. All application materials, including transcripts, should be sent directly to the Doctoral Office, 3379 Graduate School of Management, UCLA, Los Angeles, CA 90024.

Applications are accepted for Fall Quarter admission only; the deadline for submission of applications and complete documentation is January 31.

Program information and application materials may be obtained from the Doctoral Office.

All applicants to the M.S. or Ph.D. program are strongly urged to arrange an interview with at least one faculty member of their proposed area of concentration or major field area. The interview should take place before February 1.

### Master of Science Degree

The academic master's program is a full-time program which leads to the Master of Science degree in Management. Some students will enter the program with the goal of eventual acceptance into the doctoral program; for others, the M.S. will be a terminal degree. In either case, the program's emphasis is on advanced specialized training and the development of research capability.

### Major Fields or Specializations

Business economics, management science.

### Course Requirements

*Business Economics:* A maximum of 17 courses may be required. It is possible to waive the eight prerequisite courses on the basis of prior coursework. Nine graduate courses (the required and elective major field courses plus four units of Management 598) are required and cannot be waived.

(1) Prerequisites (seven courses): Management 200A, 200B, 213A, 400, 405, 406, 408.

(2) Specialization (eight courses; deviations may be approved by the chair of the business economics academic unit): Five required courses from Management 201A, 201B, 201C, 202B, 202C, 205A, plus three electives (illustrative courses and course sequences) selected from one of the following groups: *industrial organization* — Management 202A, 202D; M203A, M203B, M203C; 231A, 231B, 231C; Economics 204A-204B-204C; 271, 272; *techniques for analysis* — Economics 245A-245B-245C; 247, 248; Management 240A, 240B; *economic forecasting* — Management 201B, 201C, 201D; 205B, 205C; 230.

(3) Master's Thesis (one course): Four units of Management 598.

*Management Science:* A maximum of 16 courses may be required. The four prerequisite courses and three managerial core course requirements may be waived on the basis of prior coursework. Nine graduate courses (methodological core, depth field, and four units of Management 598) are required and cannot be waived.

(1) Prerequisites (four courses): Mathematics 32B, 152A-152B, and two quarters of computer programming.

(2) Managerial Core (three courses): Management 403, 405, 408.

(3) Methodological Core (five courses; deviations may be approved by the chair of the management science academic unit): Management M203A, 210A, 210B, 210C, 216A.

(4) Depth Field: Three courses which support your thesis research.

(5) Master's Thesis (one course): Four units of Management 598.

Four units of course 596 may be applied toward the minimum graduate course requirement.

### Thesis Plan

A thesis is required for the Master of Science degree. Students generally establish a thesis committee during their fifth quarter. Plans for the thesis should be presented to the committee for approval at the beginning of the sixth quarter.

## Ph.D. Degree

The doctoral program is a research-oriented degree program which leads to the Ph.D. in Management. The program includes intensive training in research methods applicable to problems of organizations in the public and private sectors. It prepares students for careers in university teaching and research or as staff specialists in business firms and other organizations. The program offers students substantial opportunities to discover their own, unique scholarly focus and competence.

### Major Fields

Accounting/information systems; behavioral and organizational science; business economics; computers and information systems; finance; human resources management and industrial relations; international business and comparative management; management science; marketing; organization and strategic studies; production and operations management; urban land economics.

### Course Requirements

The research preparation requirement consists of two parts: (1) a course requirement and (2) a research paper. You are required to take five research courses which are not part of the major field area. 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 your third year of study.

The breadth requirement consists of eight courses which are clearly outside your major field area. You 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 or research and teaching proficiency. Three of these courses may be waived by prior coursework. They must be completed before taking the oral qualifying examination.

There is no formal major field course requirement. Students, in consultation with a major

field adviser, design a course of study which will prepare them to pass the major field examination.

### 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 your third year of study.

You are required to present the substance of your 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, you are advanced to candidacy. The oral qualifying examination must be passed within four and one-half years of the date of entrance into the program.

### Final Oral Examination

The school requires that students take a final oral examination; this requirement may be waived only under exceptional circumstances.

### Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Lower Division Courses

**1A-1B. Elementary Accounting.** Prerequisite: sophomore standing. Course 1A is prerequisite to 1B. An introduction to accounting theory and practice. The first quarter presents the recording, analyzing, and summarizing procedures used in preparing balance sheets and income statements. The second quarter includes payroll and tax accounting, partnership and corporation accounts, manufacturing and cost accounting, and supplementary statements.

## Upper Division Courses

**120. Intermediate Accounting.** Prerequisites: courses 1A-1B or consent of instructor. The preparation of the principal accounting statements. Recording, valuation, and presentation of cash, temporary investments, receivables, inventories, investments, plant and equipment, intangibles, current obligations, long-term debt, paid-in capital, and retained earnings. Statement analysis. Statement of application of funds.

**122. Cost Accounting.** Prerequisites: course 120 and Economics 40 or 41, or equivalent. The 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.

**124. Advanced Accounting.** Prerequisite: course 122. Partnerships and joint ventures; installment sales and consignment sales; home office and branch relationships; corporate combinations; the preparation of consolidated statements; foreign branches and subsidiaries; receiverships; estates and trusts; governmental units; actuarial science.

**130. Business Finance.** Lecture, three hours; discussion, one hour. Prerequisites: course 120 and Economics 40 or 41, or equivalent. A study of the forms and sources of financing business firms large and small, corporate and noncorporate. Emphasis on financial planning and developing judgment in formulating decisions on financial problems. Financial problems are also considered in their social, legal, and economic effects. Mr. Litt

**133. Investment Principles and Policies.** Prerequisite: course 130. 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. Mr. Shelton

**140. Elements of Production and Operations Research.** Prerequisites: Mathematics 3A, 3B, 3C, 3E, Economics 40 or 41, or equivalent. Principles and decision analysis related to the effective utilization of the factors of production in manufacturing and non-manufacturing activities. Analytical models and methods for allocation, transportation, inventories, replacement, scheduling, and facilities design. Mr. Erlenkotter and the Staff

**150. Elements of Industrial Relations.** Principles and methods of effectively utilizing human resources in organizations. The relationship between social, economic, and other environmental factors and current problems in industrial relations. Mr. Hutchinson

**175. Elements of Real Estate and Urban Land Economics.** An 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. Mr. Mittelbach

**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.** Prerequisite: course 130. A study of the basic concepts and theory of management. Emphasis on an operational analysis of the manager's role in all types of organizations. Management issues in the areas of planning, organizing, staffing, directing, and controlling. Mr. Carrabino and the Staff

**197. Special Topics in Management.** Topics of special interest to undergraduate students. Specific subjects may vary each quarter 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.

**200A. Techniques of Business Economics Analysis: Marginalist Models.** Seminar, three hours. Prerequisite: course 405 or consent of instructor. Contemporary business economic principles of resource allocation and the price system are developed. Classical optimization and comparative static techniques are set forth and applied to the models of consumer choice and firm and general production-exchange equilibrium models. Mr. Osborne

**200B. Techniques of Business Economic Analysis: Econometrics.** Prerequisite: consent of instructor. Standard topics in applied econometric modeling are developed. The assumptions underlying the classical normal linear regression model, special problems in application, and interpretation of results are stressed. Practical applications are extensively developed in student projects. Mr. Kimbell

**201A. Business Forecasting.** Seminar, three hours. Prerequisites: courses 402, 406. The role of business forecasting in managerial planning. Principles and methods of forecasting. Evaluation of the reliability of existing forecasting techniques. Covers both short-term and long-term forecasting of industry, regional, and national business trends.

**201B. Industry Forecasting.** Prerequisite: course 201A. Evaluation of various methodologies found useful in preparing industry forecasts; differences between short- and long-range forecasting techniques, etc.

**201C. Regional Economic Forecasting.** Prerequisite: course 201A. Forecasting of economic activity in a region, emphasizing special problems such as population and industry migration; the effects of external forces on the regional economy.

**201D. Economic Policy and Business Environment.** Prerequisite: consent of instructor. Analysis of economic policies shaping the business policy: stabilizing policy instruments; structural policies for efficiency and progress; policy needs for the future. Treats policy formation and administration as well as design.

**202A. Economic Theories of Business Behavior: Marginal, Managerial, and Behavioral.** Prerequisite: course 200A. The economic behavior of the firm and firm groups is considered. Theories extending from those which retain marginal analysis to treat alternative corporate objectives to those viewing the firm as an adaptive mechanism with limited cognitive and information processing capabilities.

**202B. Principles of Industrial Organization.** Discussion, three hours. Prerequisite: course 405. The course applies the principles of microeconomics to actual firm behavior in order to better understand various firms' strategies for success. Topics include horizontal and vertical integration, mergers, the role of advertising, and price discrimination.

Mr. Granfield, Mr. Weston

**202C. Empirical Studies in Industrial Organization.** Prerequisite: course 202B. Analyses of factors influencing the size of industries, their size distribution, and the conditions of entry and exit are investigated. Implications of such industry characteristics are derived for decisions having to do with firm output, prices, advertising, and research/development.

Mr. Weston

**202D. The Organization of Industry and Business Policy.** Prerequisite: consent of instructor. Analysis of economic aspects of long-range planning of firms with respect to horizontal expansion, vertical integration, and diversification, especially the review of statutory and legal decisions affecting internal and external expansion policies.

**M203A. Economics of Decision.** (Same as Economics M203A.) Prerequisites: rudiments of economic theory, calculus, and probability of statistics. Norms and facts of decision making in the household, business, and government. Consistent behavior in terms of personal utilities and probabilities. Multiattribute value theory. Departures from consistency: descriptive theories of behavior and resulting models.

Mr. Sarin

**M203B. Economics of Information.** (Same as Economics M203B.) Prerequisites: rudiments of economic theory of the firm, calculus, and probability of statistics; course M203A 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.

Mr. Lippman

**M203C. Economics of Organization.** (Same as Economics M203C.) Prerequisites: courses M203A, M203B. Rational models of teams. Relation to the theory of games.

**205A. International Business Economics.** Prerequisites: courses 405 and 406, or consent of instructor. The international business environment, international economic institutions, national and regional trade policies and developments, trends in foreign markets, international monetary problems are studied for their influence on the organization and operation of the international corporation.

Mr. Mason, Mr. Mitchell

**205B. Comparative Market Structure and Competition.** Prerequisite: course 205A or consent of instructor. A 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 National Product and its components for selected countries.

**205D. The Management of Economic Development in Latin America.** Discussion, three hours. Prerequisite: course 405 or Economics 1 or 2. An introduction to economic development in Latin America. Considers the problem of population, human resources development, agriculture, and land reform. Examines various industrialization strategies, the role of foreign trade, foreign investment, and economic integration in the area's development. Analyzes role of inflation and financial intermediation in capital development.

**207A. Resource Administration of Nonmarket Activities.** Seminar, three hours. Prerequisite: course 405 or consent of instructor. Examination of the behavior of managers in the profit vs. not-for-profit sectors to determine the critical variables that explain the observed differences in behavior. Employs the methodology of microeconomics, particularly utility maximization.

Mr. Granfield

**207B. 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 impacts on public and private resource allocations. Examination of the proper roles of government and the private sector in the financing and provision of public goods and services.

**208. 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.** Prerequisite: Mathematics 115. A comprehensive development of the theory and computational methods of linear programming, with applications to business and related disciplinary areas.

Mr. Graves

**210B. Applied Stochastic Processes.** Prerequisite: Mathematics 150A or System Science 120A. Sequential stochastic (usually Markovian) decision processes in discrete and continuous time. Emphasis on problem formulation and the characterization and computations of optimal policies, often via dynamic programming; applications to inventory, queueing, maintenance, reliability, and replacement problems.

Mr. Lippman, Mr. Mamer

**210C. Network Flows and Integer Programming.** Prerequisite: course 210A. 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 the keys to successful practical applications.

Mr. Geoffrion

**211A. Nonlinear Mathematical Programming.** Prerequisites: course 210A and Mathematics 32A, or equivalent. Theory, methods, and application of the 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.

Mr. Geoffrion, Mr. Graves

**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, multidivisional, and stochastic aspects to obtain practical solution procedures in spite of large numbers of variables and/or constraints.

Mr. Geoffrion, Mr. Graves

**212A. Management Science Models I.** Prerequisites: course 407, Mathematics 31B. A broad survey of deterministic models, how to solve them, and their application in the management sciences. Solution techniques include linear programming, network optimization, integer programming, nonlinear programming, and dynamic programming. Application areas include allocation, corporate planning, distribution, finance, operations management, production, and project management.

Mr. Erlenkotter, Mr. Geoffrion

**212B. Management Science Models II.** Prerequisites: course 212A and Mathematics 32A, or equivalent. A broad survey of nonlinear, time-staged, and probabilistic models for managerial decision making. Application areas include finance, marketing, production, facilities design, and energy systems.

Mr. Erlenkotter, Mr. Mamer

**212C. Management Science Models III.** Prerequisites: courses 212A, 212B. In-depth reviews of actual management science applications. Emphasis on the professional skills needed for successful practical applications.

**213A. Intermediate Probability and Statistics.** Prerequisite: course 402 or equivalent. An introduction to probability theory and hypothesis testing as applied to management. SAS programs are used in this course and its sequels.

Mr. Mamer

**213B. Statistical Methods in Management.** Prerequisite: course 213A or consent of instructor. An 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.

Mr. Cooper, Mr. Hanssens

**213C. Introduction to Multivariate Analysis.** Prerequisite: course 213B or consent of instructor. An introduction to the 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); a survey of multivariate statistical procedures (e.g., multiple discriminant analysis, multivariate analysis of variance, canonical correlation, and confirmatory factor models).

Mr. Cooper, Mr. Hanssens

**214B. Behavioral Science Models.** Prerequisite: consent of instructor. Formulation, analysis, and interpretation of mathematical models in the 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.

Mr. MacQueen

**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.

Mr. Hanssens

**215E. Statistical Design of Surveys.** Prerequisite: course 213B or equivalent. Mathematical theory and practices of statistical survey design and analysis.

**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.

Mr. Nelson

**216B. Advanced Computer Simulation.** Prerequisite: course 216A. Advanced use of computer simulation techniques. Major term projects are undertaken, either singly or in groups, with the object of developing in students the ability to accomplish all phases of the design and execution of computer simulation.

Mr. Nelson

**217A. Statistical Decision Theory.** Prerequisite: course 213A or equivalent. Relationships among statistical decision theory, game theory, and classical statistical inference, with emphasis on sequential analysis and dynamic decision processes; axiomatic foundations, Bayes' and minimax solutions, applications to selected models of dynamic decision problems in business.

Mr. MacQueen

**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.

Mr. MacQueen

**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 are announced in advance. May be repeated for credit.

**218D. Current Problems in Management Science (1 to 4 units).** Current research on a variety of topics in the general area of management science, presented by invited University and outside speakers. May be repeated for credit.

**218X-218Y-218Z. Current Issues in Management Science (1 to 4 units each).** Current issues and research on a variety of topics in the general area of management science. May be repeated for credit.

**220A. Intermediate Financial Accounting I.** Prerequisite: course 403 or consent of instructor. The first of a two-course sequence that deals with the concepts and principles of financial accounting, with emphasis on the pronouncements of the Financial Accounting Standards Board, the Securities and Exchange Commission, and other authorities.

Ms. Hughes, Mr. Miller

**220B. Intermediate Financial Accounting II.** Prerequisite: course 220A or consent of instructor. The second of a two-course sequence that deals with the concepts and principles of financial accounting, with emphasis on the pronouncements of the Financial Accounting Standards Board, the Securities and Exchange Commission, and other authorities.

Mr. Beck

**220C. Advanced Financial Accounting.** Prerequisite: course 220B or consent of instructor. A continuation of course 220B, the course emphasizes a range of topics, which include accounting for partnerships, mergers, combinations, and parent-subsidiary relationships. Litigation procedures are reviewed, including reorganizations, receiverships, and bankruptcy.

Mr. Beck

**221. Current Issues in Accounting Information Systems.** Prerequisite: consent of instructor. Using a colloquium format, the course provides a forum for the discussion of contemporary issues in accounting and information systems. Drawing on prominent speakers in the field, the course requires the student to formulate a position paper on each topic presented.

**222. Cost Accounting.** Prerequisite: course 403. The 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.

Ms. Matsumura, Mr. Miller

**223. Verification of Financial Statements.** Problems of examination, verification, and presentation of financial statements from the standpoint of the independent public accountant. Legal and professional responsibilities of public accountants; professional ethics. Operational and management auditing.

Mr. Beck

**224A. Computer Systems.** Discussion, three hours. Prerequisites: courses 225A and either 413A or 413B, or consent of instructor. The 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. Case materials and/or actual examples are used.

Mr. Lientz

**224B. Management of Computer-Based Information Systems.** Discussion, three hours. Prerequisites: courses 224A and 224C, or consent of instructor. In-depth coverage of the problems in managing computer-based information systems. Focuses on the definition, evaluation, installation, and continuing management of EDP systems. Issues of planning and control, as well as the organizational impact of computer systems, are stressed.

Mr. McLean

**224C. Systems Analysis for Computer-Based Information Systems.** Prerequisites: courses 224A and 225A, or consent of instructor. The detailed design and specification of computer-based management information systems. Includes studies of existing systems, economic and organizational analyses of alternatives, and tools for determining user requirements. Case materials and/or actual examples are used.

Mr. Sprowls

**224D. Generalized Data Base Management Systems.** Discussion, three hours. Prerequisite: course 413A or consent of instructor. Examines the features and capabilities of generalized data base management systems. Includes system classification, comparison of software features, and evaluation of specific systems. Emphasis on management uses of such systems. A field study project may be required.

Mr. Sprowls

**224E. Computer Simulation for Management.** Discussion, three hours. Prerequisite: Computer Science 20 or course 413A or consent of instructor. Introduction to computer simulation and to general purpose simulation languages (e.g., GPSS, SIMSCRIPT, DYNAMO). Emphasis on the managerial use of simulation and the development of computer-based models for problem solving and policy analysis. Programming assignments are included.

**224F. Telecommunications and Computer Networks.** Prerequisite: course 224A or consent of instructor. Distributed processing. Networked minicomputer systems. Data communication technology. Data security in computer networks. Cost/benefit analysis for the design, configuration, and implementation of computer networks. Applications to computer utilities; command and control systems; and commercial, medical, and government networks.

Mr. Lientz

**224G. Special Topics in Computing.** Prerequisite: consent of instructor. An examination in depth of issues or problems concerned with the theory and practice of computing and the management use of EDP systems. Course may have a single theme or may deal with a number of topics. May be repeated for credit.

Mr. Frand, Mr. Lientz

**225A. Introduction to Information Systems.** Prerequisite: course 404 or consent of instructor. Basic concepts and uses of information systems in organizations. Fundamental design considerations. The role of data processing. Examples of information systems in profit and not-for-profit organizations.

Mr. Greenberger, Mr. Sprowls

**225B. Information Systems for Planning and Control.** Prerequisite: course 403 or consent of instructor. Design of systems to produce information for planning and control. Survey of approaches and techniques employed at the strategic, managerial, and operational levels. Special consideration of accounting and budgeting methods. Impact of planning and control information on human behavior.

Mr. Greenberger, Mr. McDonough

**225C. Measurement in Information Systems.** Prerequisite: familiarity with basic statistics, probability theory, set theory, and accounting, or consent of instructor. A study of the role of measurement in accounting and information systems, from the standpoint of mathematical, economic, behavioral, and organizational consideration.

Mr. Swanson

**225D. Special Topics in Information Systems.** Prerequisite: doctoral standing or consent of instructor. An examination in depth of problems or issues of current concern in information 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.

Mr. Greenberger

**225X-225Y-225Z. Current Research in Information Systems (1 unit, 1 unit, 2 units).** Discussion, two hours. Prerequisite: doctoral standing. A year-long sequence associated with the Computers and Information Systems Colloquium Series. Regularly scheduled presentations of current research and state-of-the-art developments in the information systems field. Study and discussion of the research presented. May be repeated for credit. S/U grading.

Mr. Swanson

**226. International Accounting.** Prerequisite: graduate standing. 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.

Mr. Kircher

**227A. Tax Accounting.** Prerequisite: course 403. A study of the fundamentals of income taxation, with emphasis on problems in federal and state income, franchise, gift, and estate taxes; study of source material and research methods for ascertaining current rulings and trends in laws and regulations.

**227B. Taxation and Business Policy.** Tax systems, tax shifting, and burden theory. Impact of taxation law and theory on business decisions. Corporate tax planning. The businessman and tax reform.

**229A. Accounting Theory.** Prerequisite: course 220B. A survey of accounting literature, with emphasis on the development of basic accounting concepts. An attempt is made to explain contemporary practice as it has evolved in accordance with basic theory and expanding demands for accounting information.

Mr. Farrell

**229B. Research Methodology in Accounting.** Prerequisite: course 229A or consent of instructor. Design of empirical and theoretical research in accounting. Sources of research problems. Research conduct and methodology in accounting and other fields as they relate to accounting.

Mr. Landsman



**229C. Special Topics in Accounting.** Prerequisite: doctoral standing or consent of instructor. An examination in depth of problems or issues of current concern in accounting. 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.

**229X-229Y-229Z. Accounting and Information Systems Workshop (1 unit, 1 unit, 2 units).** Discussion, two hours. Prerequisite: doctoral standing. The course is designed to develop an ability to critically evaluate research in fields relevant to the study of accounting. Papers are presented in a colloquium format by leading scholars in accounting. Active participation and intellectual interchange are encouraged through discussion of the papers in sessions prior to the workshop, as well as during the colloquium. May be repeated for credit. S/U grading.

Mr. Beck

**230. Theory of Finance.** Prerequisite: course 408. Concerned with decision making under uncertainty, the theory of asset prices, and the efficiency of capital markets. Develops the most recent theoretical constructs and applies them to fundamental issues in corporate financial management (such as capital budgeting, capital structure, and dividend policy).

Mr. Copeland, Mr. Geske, Mr. Mayers

**231A. Profit Sector Financial Policy.** Prerequisite: course 230. Identifying and solving financial problems through the use of cases. Stresses the application of financial theory and financial techniques to business problems, using written reports and classroom discussion.

Mr. May, Mr. Titman, Mr. Weston

**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. Cases are used.

Mr. Eiteman

**231C. Working Capital Management.** Prerequisites: courses 230, 231A. More detailed advanced coverage of the short-range problems of financial management. Coverage of current assets, current liabilities, and their interrelationships.

**231D. Applications of Quantitative Methods in Finance.** Prerequisites: course 230 and other 230-level seminars. Applications of multiple regression, mathematical programming, and stochastic processes to more complex problems of financial decision making. Comparison of solutions from alternative quantitative methods.

**232A. Security Analysis.** Prerequisite: course 230. Primarily a course in stock market investing, but approach is applicable to all investment assets. Includes techniques of security analysis and security valuation based on financial statements of the organization.

Mr. Mayers, Mr. Shelton

**232B. Portfolio Management.** Prerequisite: course 230. Focus on entire portfolios rather than individual assets. Review portfolio theory as applied to portfolio decision making and the evaluation of achieved portfolio performance. Case studies of portfolio construction.

Mr. Shelton

**232D. Option Markets.** Prerequisite: course 230. The course deals exclusively with the organization and role of organized put and call markets, arbitrage and hedging relationships, the valuation of options, the implementation of option trading strategies, the perspective of corporate securities as options, the function of options in securities markets, and innovations in option markets. Students learn fundamentals of hedging and spreading by playing an option trading game and writing a term paper analyzing their trading strategies.

Mr. Geske

**233A. Money and Capital Markets.** Prerequisite: course 230. Application of interest theory and flow funds analysis to the price determination process in the markets for bonds, mortgages, stocks, and other financial instruments. Study of funds flow from credit markets. Analysis of costs of capital in individual industries.

Mr. Cornell, Mr. Masulis, Mr. Roll

**233B. Financial Institutions.** Prerequisites: courses 230, 233A. Study of the financial policies and practices of commercial banks, savings and loan associations, pension funds, insurance companies, and other major financial institutions. Review of current major problems facing senior managers of these financial institutions.

Mr. Andersen, Mr. Masulis, Mr. Roll

**233C. Speculative Markets.** Prerequisite: course 230. Study of the theory and evidence of capital market efficiency, including the stock market, the bond market, commodity future markets, the options market, money markets, and foreign exchange markets.

Mr. Copeland

**234A. Multinational Business Finance.** Lecture, three hours. Prerequisites: course 408 and either 205A or 230. Financial problems in the management of multinational businesses. Included are the international venture and financial techniques for the daily operation of a multinational firm.

Mr. Eiteman

**234B. Advanced Studies in International Finance.** Prerequisites: courses 230, 234A. Study of current and important issues of international financial management. Major focus on the interrelation of advanced theoretical concepts and their implications for the business firm in its international financial management decisions.

**235A. Problems in Insurance Management.** Discussion, three hours. Prerequisite: consent of instructor. Advanced consideration of the problems of insurance management. Treats the actuarial, underwriting, investment, marketing, and regulatory problems relating to insurance activities.

Mr. Hofflander

**235B. Risk and Risk Bearing.** Lecture, three hours. Prerequisite: consent of instructor. Advanced consideration of the theory of risk and risk bearing. The analysis of alternative ways of meeting risk and uncertainty, the scope and limits of insurance, and the economics of insurance.

Mr. Hofflander

**238. Special Topics in Finance.** Prerequisites: course 230, consent of instructor. Intended for master's students. Selected topics in finance theory, empirical studies, and financial policy. May be repeated for credit with instructor change.

Mr. Geske

**239A. Theory of Exchanges under Uncertainty.** Prerequisites: course 230, consent of instructor. Foundations of the theory of exchange are developed as an introduction to theoretical literature on the pricing of capital assets. Primarily intended for Ph.D. students, but well-prepared master's students may find the course useful in their career preparation.

Mr. Geske

**239B. Theory of Investment under Uncertainty.** Prerequisites: courses 230 and 239A, or consent of instructor. Foundations of theory of firm capitalization and investment decisions are developed, with special attention to questions of exchange and allocative efficiency. Primarily intended for Ph.D. students, but well-prepared master's students may find the course useful in their career preparation.

**239C. Empirical Research in Finance.** Prerequisites: course 230, training in econometrics, consent of instructor. In-depth study of empirical research in the field of finance, with emphasis on market efficiency, capital asset pricing, and option pricing. Primarily intended for Ph.D. students, but well-prepared master's students may find the course useful in their career preparation.

Mr. Roll

**239D. Ph.D. Seminar in Finance.** Prerequisites: course 230, courses in the 239 series. Intended for Ph.D. students. Advanced topics in finance theory and empirical research. May be repeated for credit with instructor change.

**239X-239Y-239Z. Finance Workshop (1 unit, 1 unit, 2 units).** Discussion, 90 minutes. Prerequisite: doctoral standing. The course is designed to develop an ability to critically evaluate finance research. Papers are presented in a colloquium format by leading scholars in finance. Active participation and intellectual interchange are encouraged through discussion of the papers in sessions prior to the workshop, as well as during the colloquium. May be repeated for credit. S/U grading.

Mr. Mayers

**240A. Aggregate Planning and Work Force Scheduling.** Prerequisite: course 410. Managerial methods for short-term capacity planning and scheduling in aggregate terms. Theoretical models and management practices in manufacturing and service operations. Model formulation that allocates use of regular and overtime labor, inventories where appropriate, backordering shortages, and outside capacity.

Mr. Sarin

**240B. Scheduling and Control of Operations.** Prerequisites: courses 407 and 410, or consent of instructor. Detailed short-term scheduling and control of productive (production or service) operations. Identification of objectives and performance criteria for evaluating scheduling and control procedures. Classification of production and service systems. Scheduling problems and solution approaches for different types of systems.

Mr. Nelson

**240C. Design of Operational Systems.** Prerequisite: course 410. Issues in selection of the capabilities, characteristics, and configuration of service and manufacturing systems as part of overall strategy for attaining organizational goals; planning of capacity, location, processes/technologies, facilities, organizational structures, and jobs.

Mr. Andrews

**241. Technological Bases of Jobs and Organizations.** Prerequisite: consent of instructor. Technological determinants of operating systems and jobs; productive system design models; behavioral models underlying operating system design, technology, and social system design; operating system variability, control, and measurement.

**242A. 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.

Mr. Erlenkotter

**243A. 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.

**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. Deterministic, stochastic, discrete, and continuous time models are considered.

**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.

Mr. Nelson

**244. Policy Issues in the Management of Operations.** Prerequisite: second-year graduate standing. Case analyses centering on the operations phases of enterprises. Cases selected are at the policy level and are drawn from service, nonmanufacturing, and manufacturing industries.

Mr. Buffa

**245A. Special Topics in Operations Management.** Studies of advanced subjects of current interest in operational management. Emphasis on recent developments and the application of specialized knowledge to operational problems. Topics vary each quarter. May be repeated for credit with topic change.

**245B-245C. Survey of Operations Management.** Prerequisite: graduate standing. Survey of the research literature in operations management. Seminar reports dealing with special topics.

**245X-245Y-245Z. Production and Operations Management Seminar (1 unit, 1 unit, 2 units).** Discussion, 90 minutes to three hours. Prerequisite: doctoral standing. Required of all students in the production and operations management concentration during the first two years of their Ph.D. work. Student and faculty presentations of ongoing research. May be repeated for credit.

Mr. Sarin

**246A. Policy Analysis in the Public/Not-for-Profit Sector.** Prerequisite: completion of the management analysis requirement for the M.B.A. program. Application of several analytic techniques for policy analysis. Specific topics include forecasting/scenario writing, multiple objective decision making, cost analysis, risk/benefit analysis, and social experimentation. Limitations of methodologies are examined and concepts illustrated through current applications and case studies.

Mr. Zumeta

**246B. Budgeting and Resource Allocations in the Public/Not-for-Profit Sector.** Prerequisites: courses 246A, 403, and 408, or consent of instructor. Examines 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. Policy Implementation in the Public/Not-for-Profit Sector.** Prerequisites: courses 246A and 246B, or consent of instructor. Emphasizes problems, strategies, techniques for implementing policies within the organizational context. Relates public interest needs for accountability and responsibility to the organizational/managerial needs for security and advancement. Includes consideration of public sector entrepreneurship, public personnel management, public sector consulting.

Mr. Zumeta

**247A. Interorganizational Strategies in the Public/Not-for-Profit Sector.** Prerequisite: consent of instructor. Consideration of public/not-for-profit organizations as members of a network, from the point of view of strategies for managing the entire network, and managerial implications for an individual, focal organization. System structure, transactions, levels of collaboration, competition, and dependence.

Mr. Boje

**248. Special Topics in Public/Not-for-Profit.** Prerequisite: consent of instructor. Studies of advanced subjects of current interest in public/not-for-profit management. Emphasis on recent developments and the application of specialized knowledge to public/not-for-profit problems. Topics vary each quarter. May be repeated for credit with topic change.

Mr. Zumeta

**250A. Labor Relations: Process and Law.** (Formerly numbered 251.) Lecture, three hours. Prerequisite: graduate standing. Consideration, at an advanced level, of the collective bargaining process, the labor-management agreement, the administration of the contract, the law of labor-management relations, union structure and goals, and the influence of external labor markets on labor relations.

Mr. Fogel, Mr. Jacoby, Mr. Mitchell

**250B. Human Resource Management: Process and Law.** (Formerly numbered 252.) Lecture, three hours. Prerequisite: course 250A. A systematic exposure to the theoretical and empirical literature concerning the administrative and legal aspects of human resource management. Topics include the processes of managing human resources and the impact of governmental policies on employer-employee relations.

Mr. Fogel, Mr. Jacoby, Mr. Mitchell

**250C. Behavioral Foundations of Human Resources Management.** (Formerly numbered 250B.) Lecture, three hours. Prerequisite: course 250B or consent of instructor. Topics include development and training; human resources 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.

Mr. Flamholtz, Mr. Massarik

**251. Managing Human Resources.** (Formerly numbered 250A.) Lecture, three hours. The course focuses on the management of people in organizations, is intended for managers as well as personnel specialists, and is organized at three related but distinct levels of analysis: (1) the day-to-day utilization of people as organizational resources to achieve optimal productivity, satisfaction, retention, and development; (2) the personnel management function or system that performs specialized human resources functions; and (3) the issues facing top management which involve the management of human resources, including strategic planning for human resources, union-management relations, and design of corporate culture.

Mr. Flamholtz

**252. Systems of Employee-Management Participation.** (Formerly numbered 250C.) Lecture, three hours. Prerequisite: consent of instructor. Course is 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 are covered.

Mr. Adizes

**253. Conflict Resolution in Labor-Management Relations.** (Formerly numbered 253B.) Lecture, three hours. Prerequisite: graduate standing. Analysis of conflict in the employment relationship; theoretical and empirical findings. Principles and philosophies that underlie resolution of labor-management impasses are considered, with emphasis on grievance procedures, arbitration, mediation, and fact-finding.

Mr. Fogel

**254. Analysis of Labor Markets.** Prerequisite: consent of instructor. Problems of verifying hypotheses concerning labor market behavior and the application of data to managerial problems. Problems of operationally defining labor market concepts. Critical evaluation of available labor market data. Case studies applying these data to managerial problems.

**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. Included are the institutions, philosophies, and ideologies of labor, management, and government, and the interaction of their power relationships; the substance and manner of determination of "web of rules" governing the rights and obligations of the parties; and the resolution of conflicts.

Mr. Hutchinson

**256. Seminar in 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. Labor-Management Relations in Public and Nonprofit Sectors.** Prerequisite: graduate standing. Analysis of labor-management relations in government, including public education, and in nonprofit institutions (i.e., artistic, cultural, recreational, and health care). Emphasis on negotiations and group relationships rather than on public personnel administration.

**258. Selected Topics in Industrial Relations (1 to 4 units).** Prerequisite: doctoral standing or consent of instructor. An 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.

Mr. Hutchinson

**259A. Employment Planning and Evaluation.** Lecture, three hours. Prerequisite: course 254. Development of programs and practices to meet the human resource needs of organizations, including staffing, training, management development, career progression, and evaluation.

**259B. Equal Employment Opportunity Management.** Lecture, three hours. Prerequisite: course 254. The development and administration of programs to provide equal employment opportunities in employing organizations. Current statutory and case law and administrative agency requirements are covered.

Mr. Fogel, Mr. Jacoby, Mr. Mitchell

**260A. Advanced Marketing Management.** Prerequisite: course 411 or consent of instructor. A decision-oriented course concerned with the solution of product, price, promotion, and distribution channel problems. Extensive use of case studies.

Ms. Scott

**260B. Marketing Strategy and Planning.** Prerequisite: course 260A or consent of instructor. A framework for strategic marketing planning is developed. The cornerstones are the analysis of a few, yet powerful, conceptual frameworks which have broad application. Within the framework of the strategic marketing plan, key elements in the annual marketing planning process are developed.

Mr. Carpenter

**261A. Management in the Distribution Channel.** Prerequisite: course 260A or consent of instructor. An examination of decisions in the distribution channel. Issues of power in the distribution channel and the trade-offs between alternative channel systems are discussed.

**261B. International Marketing Management.** Prerequisite: course 260A or consent of instructor. Opportunities, distinctive characteristics, and emerging trends in foreign markets are analyzed. Includes an exploration of alternative methods and strategies; organizational planning and control; impact of social, cultural, economic, and political differences; and problems of adapting American marketing concepts and methods.

Mr. Hanssens

**262. Price Policies.** Prerequisite: course 260A or consent of instructor. Consideration of such concepts as product classification, demand, competition, and costs, as they apply to price making. The theory of price leadership, geographical pricing, price discrimination, price warfare, and leader pricing are also studied in relation to the price-making process. In addition, attention to the price policies of individual firms in which these concepts are applicable.

**263A. Consumer Behavior.** Prerequisite: course 411 or consent of instructor. A study of the nature and determinants of consumer behavior. Emphasis on the influence of sociopsychological factors such as personality, small groups, demographic variables, social class, and culture on the formation of consumers' attitudes, consumption, and purchasing behavior.

Mr. Kassarian

**263B. Theory of Marketing Stimulation.** Prerequisite: course 263A. Analysis of factors influencing consumer demand. Techniques for stimulating demand are evaluated in relation to specific marketing objectives. Material is drawn from economics, psychology, sociology, anthropology, and marketing research.

**264A. Marketing Research: Design and Evaluation.** Prerequisite: course 411 or consent of instructor. Methods of measuring and predicting the forces affecting marketing, including quantitative aspects of demand, consumer reaction to product characteristics, effectiveness of advertising and other promotional devices, influence of rewards and organizational systems on sales efficiency, and effectiveness of competitors' strategies. Mr. Currim, Mr. Meyer

**264B. Mathematical Models in Marketing.** Prerequisite: course 260A or equivalent or consent of instructor. A study of the utilization of models for the solution of marketing problems. Discussion on models concerned with such problems as brand switching, media selection, pricing, competitive strategy, scheduling, allocation problems, and waiting time.

**264C. Seminar in Multidimensional Scaling.** Prerequisite: consent of instructor. A seminar providing for the study of recent developments in metric and nonmetric multidimensional scaling. Mr. Cooper

**265A. Marketing and the Law.** Prerequisite: course 260A or consent of instructor. A detailed study of the legislative enactments (federal, state, or local) which influence the operation of institutions engaged in marketing activities, together with an analysis of the judicial decisions which have interpreted these laws. Mr. Kassarijan

**265B. Social Issues in Marketing.** Prerequisite: course 260A 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.** Prerequisite: course 260A. The course develops a framework for identifying and appraising alternative growth strategies of the firm. Product addition, modification, and deletion decisions are examined, and the processes by which these decisions can be made in an optimal manner are discussed. Mr. Currim

**266B. Advertising Policy.** Prerequisites: courses 260A and 263A, or consent of instructor. A study of the formulation of advertising policies, involving an analysis of cases dealing with the role of advertising in marketing, the definition of advertising objectives, strategy, appropriation policy, media selection, evaluating advertising results, and the organization of the advertising function. Mr. Nakamoto

**266C. Sales Force Management.** Prerequisite: course 411 or consent of instructor. The course develops a logical framework for the solution of problems in sales force management. It covers the role of selling in the marketing mix, the selling interaction, and key problems in planning, organizing, evaluating, and controlling the sales force.

**267. Macromethodological Issues in Research on People.** Prerequisite: consent of instructor. The course provides a systematic approach to the special issues concerning research on people; criteria for evaluating macromethodologies; development of scientific concepts, models, theories, and law; the problem of private report, and the question of data language.

**268. Selected Topics in Marketing (1 to 6 units).** Prerequisite: course 260A or consent of instructor. A study of selected areas of marketing knowledge and thought. Specific subjects vary each quarter depending on the particular interests of the instructor and students. Individual projects and reports. May be repeated for credit.

**269A. Theory in Marketing.** Prerequisite: consent of instructor. The course serves a two-fold purpose. At one level it serves as a mechanism to introduce the student to the development of marketing thought. In addition, issues pertaining to the general topic of theory development and testing are addressed. The general goal is to prepare the student for conducting theoretically-grounded research in marketing.

**269B. Research in Marketing Management.** Prerequisite: consent of instructor. Intended for Ph.D. students. Study of research issues associated with marketing management decisions. Recent research in the areas of strategic marketing, marketing segmentation, new product development and introduction, pricing strategies, channel policy, promotion decisions, and sales force management is examined critically. Both quantitative and behavioral approaches to studying these issues are reviewed. Mr. Carpenter

**269C. Quantitative Research in Marketing.** Prerequisite: consent of instructor. Intended for Ph.D. students in management and related fields. Students are assumed to have a good background in marketing principles and to be familiar with probability, statistics, mathematical programming, and econometrics. The purpose is to review a range of quantitative models as applied in marketing research. Mr. Meyer

**269D. Behavioral Research in Marketing.** Prerequisite: consent of instructor. Empirical research in consumer behavior is 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. Workshop in Marketing (1 unit, 1 unit, 2 units).** Prerequisite: doctoral standing. Required of all students during the first two years of their Ph.D. work. The 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 are the goals of this workshop, which helps the student gain a richer perspective on the field of marketing. Mr. Meyer

**270. Environment of the Art World.** Prerequisite: consent of instructor. Consideration and analysis of the political, social, economic, and environmental forces in American society as they affect the existence and development of arts institutions in the U.S. The aim is to explore present policies and trends and potential future developments.

**271. Law and the Arts.** Prerequisite: consent of instructor. Exploration of the way in which law and the arts relate, the 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.

**272. The Role of Management in Artistic Decision Making.** Prerequisite: consent of instructor. A descriptive study of the criteria for decision making in artistic institutions, including the role of the institution in society, the economic environment of the arts, and the artistic value systems of arts organizations.

**274. Current Issues in Arts Management.** Prerequisite: consent of instructor. The seminar of the final quarter is viewed as the major vehicle integrating the academic program and current issues in the management of artistic institutions. Relevant combinations of lectures, discussions, case studies, and team research projects are employed.

**275A. Urban Issues and Problems.** Discussion, three hours. Prerequisite: course 175 or consent of instructor. Identification and analysis of emerging issues and problems in turbulent urban environments; land utilization and regulations, transportation, real estate and building industries, urban sprawl, taxation, city size and efficiency, environmental pollution, and related topics. Mr. Mittelbach

**275B. Urban Land Economics.** Discussion, three hours. Prerequisite: course 175, 405, or consent of instructor. Development and use of economic and management principles and methods to analyze and project urban land uses and land values; study of demand for and supply of industrial, commercial, retail, and residential space in the context of urban growth, structure, and change. Mr. Mittelbach

**275C. Alternative Urban Futures.** Discussion, three hours. Prerequisite: consent of instructor. Examination of the forces which lead to the creation of new urban areas in order to identify private development opportunities. Business techniques and economic principles are used to define new areas of potential growth and to prepare financial, marketing, and management plans for realizing these potentials through private residential, commercial, or industrial development. Forecasting, spread sheets, and financial analysis are among the techniques emphasized. Mr. Case, Mr. Mittelbach

**276A. Theory of Urban Property Valuation.** Discussion, three hours. Prerequisite: course 408 or equivalent. Systematic analysis of factors which create urban property values. A systems approach is used to analyze the nature and impact of social, economic, political, and physical forces which can influence property values. Students are encouraged to use computer-based analysis. Mr. Case, Mr. Mittelbach

**276B. Comparative and International Urban Land Studies.** Discussion, three hours. Analysis of private and public decisions shaping urban growth and change in developed and developing nations. Emphasis on economic, social, and institutional forces influencing urban structure, land-use patterns, and growth and distribution of jobs and people in the built environment. Mr. Case, Mr. Mittelbach

**276C. Urban Dynamics: Degeneration and Regeneration.** Discussion, three hours. Prerequisite: consent of instructor. The local urban area is used as a laboratory to identify the forces which have caused changes — good and bad — in the area and to prepare market and financial feasibility studies of private development opportunities in such areas. Fieldwork is an integral part of the course, with students encouraged to organize into development teams. Mr. Case, Mr. Mittelbach

**277A. Housing Economics.** Discussion, three hours. Prerequisite: consent of instructor. Concepts, models, and methods to study and forecast local, regional, and national housing markets; consumer and investor behavior; residential land development and building; primary and secondary residential mortgage markets; private and public forces influencing housing costs and prices. Mr. Case, Mr. Mittelbach

**277B. Housing Policy.** Discussion, three hours. Prerequisite: consent of instructor. Alternate housing strategies, policies, and programs; housing for low and moderate income groups; urban renewal; community services to improve housing environment; stimulating innovation and efficiency in production, distribution, and delivery of residential capital and housing services; the roles of private enterprise. Mr. Case, Mr. Mittelbach

**278A. Urban Real Estate Financing and Investing.** Discussion, three hours. Prerequisite: consent of instructor. An investor-oriented course in which real estate and business trends are evaluated to determine alternative real estate investment opportunities. Current financial, economic, and investment theories and techniques to real estate investment opportunities are used in case studies and short case problems to illustrate the development of investment strategies. Mr. Case, Mr. Mittelbach

**278B. Sources, Uses, and Flows of Real Estate Capital.** Discussion, three hours. Analysis of money, capital, and mortgage markets to determine the potential availability and costs of mortgage money from alternative sources. Various sources of funds are evaluated to determine factors influencing the decisions to make mortgage loans. All types of lending instruments, particularly mortgage instruments, are examined for their impacts on real estate investment decisions. Mr. Case, Mr. Mittelbach

**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. Mr. Case

**279B. Selected Topics in Urban Land Economics.** Open to all graduate students who wish to pursue a particular topic in housing, real estate, or urban land economics in depth on an individual or cooperative basis. 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 urbanity and its problems; prospects and prescriptions for the delivery of a quality life. The exploration is both macroscopic and microscopic as related to problems of a selected urban area.

**280A. Important Studies in Human Systems.** Prerequisite: doctoral standing or consent of instructor. Surveys seminal studies of human systems. Summarizes and critiques literature focal to the evolution and current status of the field. Reviews such topics as personality, motivation, group and intergroup behavior, systems theory, and organizational design and development. Mr. Massarik

**280B. Survey of Research Philosophies and Methods.** Prerequisite: doctoral standing or consent of instructor. Offers a broad introduction to objectivist and subjectivist philosophies of science, and the psychology and sociology of science. Critiques laboratory and field experiments; field studies, analytical and descriptive methods; interview, participant observation, questionnaire, and unobtrusive methods of data collection.

**280C. Personal and Professional Development.** Prerequisite: doctoral standing or consent of instructor. Provides a setting where students may explore their own professional values in the process of testing and learning the values and standards important in the human systems Ph.D. program and held by the broader community of system researchers and interveners. Mr. Culbert

**280D. Research Design for Human Systems Studies.** Prerequisite: course 280A or 280C or consent of instructor. Acquaints students with temporal and logical sequences in the process of designing studies of human systems, including optimizing the fit of research topic, observation, and data collection methods and data analysis techniques. Actively involves students in the preparation of research proposals.

**280E. Tutorial in Human Systems Research.** Prerequisite: course 280D or consent of instructor. Provides an opportunity for students to offer and receive constructive comment on the design, data analysis, and writing of their Ph.D. research papers.

**280F. Human Systems Research Seminar.** Prerequisite: course 280D or consent of instructor. Exploration of various research methods and problems encountered in applying them. Students are actively involved in seminar reports and in class critique of course members' dissertation research designs. May be repeated for credit. Mr. Boje

**281A. Sociotechnical Systems.** Prerequisite: graduate standing. Introduces systems concepts and views work organizations as interacting social and technical systems open to forces from the surrounding environment. Focus on developing the sociotechnical systems analytic approach and understanding the advantages of this approach for designing and managing organizations. Mr. Davis

**281B. People in Organizations.** Prerequisite: graduate standing. Introduces different philosophical perspectives for understanding human behavior. Theories and concepts important for understanding human behavior in organizations are presented as well as managerial implications of individual, group, and social behavior. Special attention to knowledge about satisfaction motivation and productivity in organizations. Ms. Lasko

**281C. Situational Factors in Management.** Prerequisite: graduate standing. Applies a situational, contingency, or "it all depends" perspective to important managerial issues, such as personality, motivation, leadership, conflict management, and design of jobs and organizations. Develops a diagnostic way of thinking that is fundamental to managerial effectiveness in diverse organizational situations.

**282. Task Group Processes.** Prerequisite: course 281A or 281B or consent of instructor. Focuses on the structures, processes, and interrelations of work groups in sociotechnical systems. Emphasizes an understanding of how group activities interrelate with the physical/technical environment. Imparts a practical knowledge of task group functioning through class exercises and field observations. Mr. Culbert

**283A. Environmental Settings of Sociotechnical Systems.** Prerequisite: course 281A or consent of instructor. Focuses on the complexity and uncertainty of organizational environments. Analyzes environments along sociocultural, political, and economic dimensions, their interrelationships, and their relations to technology. Diagnoses organizational responses to various environments. Mr. Davis

**284A. Organization Design.** Prerequisite: course 281A or consent of instructor. Survey of organizational design theories and methods, including bureaucratic, participative, and cognitive models. Develops specific methods ranging from the microdesign of jobs to the macrodesign of total organizational structures. Special emphasis on sociotechnical and differentiation/integration models. Mr. Davis

**284B. Organization Development.** Prerequisite: course 281B or consent of instructor. Analyzes effects of managerial practices on individual self-fulfillment and organizational effectiveness. Presents theories of organization change and the action-research methods of organization development practitioners. Merges theory with practice through seminar discussions of field observations.

**285A. Leadership, Motivation, and Power.** Prerequisite: course 281B or consent of instructor. Studies theoretical and practical approaches to influencing and motivating people. Explores the relative effectiveness of various leadership styles, different motivation theories, and power tactics from a managerial point of view. Uses experience-based learning methods to aid diagnosis and understanding of one's own influence styles. Mr. Culbert

**285B. Managerial Interpersonal Communication.** Prerequisite: course 281B or consent of instructor. Focuses on organizational, interpersonal, and personality factors affecting managerial communications. Analyzes styles and modes of communication in one-to-one, group, and indirect communication settings. Offers opportunities to deepen understanding of one's own communication styles and skills. Mr. McDonough

**287. Sensitivity Training Groups and Their Facilitation.** Prerequisite: consent of instructor through prior application to the department. Develops cognitive and experiential understanding of the dynamics of sensitivity training groups and their facilitation. Analyzes relevant theory, research findings, and case studies; stresses translating these inputs into practice.

**288A. Special Studies in Managing Organization Behavior.** Prerequisite: M.B.A. standing or consent of instructor. An examination in depth of problems or issues of current concern in managing organizational behavior. Emphasis on recent theories, research findings, and professional applications of special interest to M.B.A. students and faculty. May be repeated for credit. Mr. Davis

**288B. Selected Topics in Behavioral Science.** Prerequisite: doctoral standing or consent of instructor. Focuses on philosophies and theories of human behavior fundamental to the study of individual, group, organizational, and cultural behavior. Explores in depth selected theoretic positions, extending and consolidating behavioral science knowledge and applications. May be repeated for credit. Mr. Tannenbaum

**288C. Current Issues in Sociotechnical Systems and Organization Design.** Prerequisite: doctoral standing or consent of instructor. Covers current topics in the analysis and design of organizations as sociotechnical systems engaged with various technologies and environments, emphasizing design approaches emanating primarily from Europe and the United States. Includes in-depth comparisons of selected job and organizational design approaches. May be repeated for credit.

**288D. Current Issues in Human Systems Change and Development through Consulting.** Prerequisite: doctoral standing or 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 leaving, diagnosing, process consultation, consciousness raising, team building, values, etc., depending on student and faculty preferences. May be repeated for credit.

**288E. Selected Topics in Organization Theory.** Prerequisite: doctoral standing or consent of instructor. In-depth treatment of organizations as units of analysis. Emphasizes recent theoretical and empirical development, methodological issues in organizational research, and concepts of organization structure, process, and effectiveness. May be repeated for credit.

**288F. Selected Topics in Organizational Behavior.** Prerequisite: doctoral standing or consent of instructor. Explores psychological and social psychological aspects of human behavior and performance in organizations. Covers 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.

**288G. Current Issues in Human Systems Studies.** Prerequisite: doctoral standing or consent of instructor. In-depth study of theory and research pertaining to a particular subject matter or such topics as cross-cultural, organization change, action, and multivariate research, depending on student and faculty interest. May be repeated for credit.

**288X-288Y-288Z. Behavioral and Organizational Sciences Workshop (1 unit, 1 unit, 2 units).** Discussion, two hours. Prerequisite: doctoral standing. Designed to expose Ph.D. students to the research within the field while at the same time requiring that each Ph.D. student develop a critical framework for evaluating and integrating recent research. May be repeated for credit. S/U grading. Mr. Massarik

**290. Organization Theory.** Prerequisite: course 423 or consent of instructor. Analysis of the theory and practice of the managerial function of organizing through study of the literature, case analyses, and seminar discussion. Individual projects and reports. Mr. McKelvey

**291. Planning and Control.** Prerequisite: course 423 or consent of instructor. Analysis of the theory and practice of the managerial function of planning and control. The implementation of objectives through policy formulation, decision making, and control. Individual projects and reports.

Mr. Carrabino, Mr. Steiner

**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.

Mr. Goodman

**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 the systems changes recommended in the sociotechnical field study.

**292C. Comprehensive Planning in the Public Sector.** Prerequisite: consent of instructor. Evolving modes of planning under complexity, with particular emphasis on the 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.

**292D. Management in the Not-for-Profit Sector.** Prerequisite: graduate standing. A study of the not-for-profit sector, the institutions within it, and its relationship to the governmental and business sectors. Special emphasis on management problems peculiar to the not-for-profit sector.

Mr. Andrews

**293. Business and Society.** Prerequisite: consent of instructor. A study of the business enterprise as a social institution, with emphasis on the changing purposes of social action. Adjustments of the firm to changes in the social environment. Ethical problems in management. Social responsibilities of the business manager.

**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. The student is 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 are 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. An exploration in entrepreneurship particularly concerned with the formation and operation of new business ventures. Significant and crucial aspects of exploring new business opportunities and starting a business.

Mr. Schöllhammer

**295B. Small Business Management.** Prerequisite: consent of instructor. Exploration of crucial aspects in managing small business enterprises. Emphasis on the identification and analysis of characteristic operating problems of small firms and the application of appropriate methods or techniques for their solution.

Mr. Schöllhammer

**296A. International Business Management.** Prerequisite: course 205A or consent of instructor. Identification, analysis, and resolution of managerial issues of policy and action within the context of an international corporation, with emphasis on problems of adaptation to different sociological, cultural, legal, political, and economic environmental characteristics.

Mr. Schöllhammer

**296B. International and Comparative Management Research.** Prerequisite: doctoral standing or consent of instructor. In-depth study of theory and research pertaining to international business and comparative management. Emphasizes recent research developments and methodological issues. Imparts knowledge on the design and the conduct of international/comparative management research.

Mr. Mason

**297A. Comparative and International Management.** Prerequisite: course 412 or consent of instructor. A comparative study of the practice of management in selected foreign countries, as affected by their social environments and the 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 are 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. An 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. An 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. An 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).** Prerequisite: doctoral standing or consent of instructor. An examination in depth of problems or issues of current concern in 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.

**298X-298Y-298Z. Management Strategy and Policy Workshop (1 unit, 1 unit, 2 units).** Discussion, three hours. Prerequisite: doctoral standing. Designed to develop an ability to critically evaluate research in fields relevant to the study of management strategy and policy. Papers are presented in a colloquium format by leading scholars in management strategy and policy. Active participation and intellectual interchange are encouraged through discussion of the papers in sessions prior to the workshop, as well as during the colloquium. May be repeated for credit. S/U grading.

Mr. Goodman

**299M. Ph.D. Seminar in Research Methodology.** Discussion, three hours. Prerequisite: doctoral standing. Methodological issues in management research. Emphasis on the identification of research opportunities and the 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 the research requirement. Quarterly meetings are held to discuss expectations of the research committee and the Doctoral Office. Students must enroll the quarter in which they are submitting their research paper. May be repeated for credit.

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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 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.

**401. Managerial Economics.** Prerequisite: graduate standing. Introduction to the measurement and determination of economic activity in the aggregate and to the role of prices in the decision making of the organization. National income accounting, basic economic policy, markets and prices, competition and monopoly, applications.

**402. Data Analysis, Statistics, and Decision Making.** Prerequisite: graduate standing. An introduction to statistics for graduate students who have had no previous course with emphasis on application to business problems.

Mr. MacQueen, Mr. Sanin

**403. Managerial Accounting.** Prerequisite: graduate standing. An introduction to fundamental systems and procedures in financial and managerial accounting, with emphasis on income measurement, marginal analysis, standard and direct costing.

Mr. Buckley, Mr. Kircher, Mr. Landsman

**404. Managerial Computing.** Prerequisite: graduate standing. An introduction to the use of computers for management applications. Computer hardware, software, and programming concepts are discussed. Programming problems are assigned, using both batch and interactive approaches.

Mr. Frand, Mr. McLean

**405. Managerial Economics: The Organization.** Analysis of decision making in the firm, competitive policies and market structure, revenue and cost behavior.

Mr. Granfield, Mr. Nicols, Mr. Osborne



**406. Managerial Economics: Forecasting.** Prerequisite: graduate standing. Sales, costs, and profit forecasting. General business forecasting and cyclical mechanisms. Mr. Kimbrell, Mr. Norton

**407. Managerial Model Building.** Prerequisite: course 400 or 402 or equivalent. A survey of the 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.

Mr. Jackson, Mr. MacQueen, Mr. Nelson

**408. Managerial Finance.** Prerequisite: course 403. 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 the organization's resources.

Mr. Andersen, Mr. Copeland, Mr. Hofflander

**409. Personnel Management and Labor Relations.** Prerequisite: graduate standing. Human resources evaluation. Compensation practices. Collective bargaining impacts. Governmental policy impacts on public/private sectors regarding labor-management relations, affirmative action, occupational safety, pension reform. Concepts of labor markets and manpower planning. Innovations such as employee participation and flextime.

Mr. Fogel, Mr. Hutchinson, Mr. Jacoby

**410. Production and Operations Management.** Prerequisite: course 407 or equivalent. Principles and decision analysis related to the effective utilization of the factors of production in manufacturing and non-manufacturing activities for both intermittent and continuous systems. Production organizations, analytical models and methods, facilities design, and the design of control systems for production operations.

Mr. Andrews, Mr. Buffa, Mr. Sarin

**411. Elements of Marketing.** A study of institutions and functions as they relate to the distribution of goods and services, emphasizing the viewpoint of management in the planning, execution, and measurement of marketing activities and strategies, and the viewpoint of society in the analysis of cost, impact, and results.

**412. Management of Organizations.** Prerequisite: graduate standing. 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.

Mr. Barney, Mr. McKelvey, Mr. Spender

**413A. Business Computer Programming.** Prerequisite: course 404 or Computer Science 10C or 10S or equivalent experience. Programming business and management applications in a general purpose programming language. Choice of language used (e.g., PL/1, Cobol) may vary each quarter. Issues of program structure; input, output, and editing considerations; data and file structures; and characteristics of commercial data processing. Extensive programming assignments.

Mr. Lientz, Mr. McLean, Mr. Spowls, Mr. Swanson

**413B. Interactive Computer Programming.** Prerequisite: course 404 or Computer Science 10C or 10S or equivalent experience. Use of interactive computer programming (e.g., in APL) to solve management problems. Formulating algorithms for unstructured problems and ad hoc queries is emphasized. Several computing environments (i.e., large central computers; minicomputers and microcomputers) are featured. Extensive programming assignments.

Mr. Lientz, Mr. McLean, Mr. Spowls, Mr. Swanson

**420. Management Policy.** Prerequisite: course 412. 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.

Mr. Barney, Mr. Mason, Mr. Rumelt

**423. Advanced Management Theory.** Advanced study of management theory in formally organized enterprise through significant readings; discussing advanced approaches and techniques developed from applying theory; using theory to integrate methods and findings of quantitative and behavioral sciences; lectures on sophisticated application of management theory in practice.

Mr. Raia

**435. Organizational Behavior and Management Processes.** Prerequisite: graduate standing. A system approach to the theory and practice of management in complex organizations. Provides an integrated view of human behavior and managerial processes in a dynamic organizational society.

**440. Managerial Problem Solving: Individual.** Prerequisite: graduate standing. Study and practice of individual decision making and problem solving, including the impacts of personality, motivation, interpersonal communication, and various decision making techniques. The relationships among the individual, managerial roles, and complex organizations as they influence the managerial process are studied.

**441. Managerial Problem Solving: Complex Systems.** Prerequisite: course 440. Study of organizational and interorganizational problem solving, including identification, formulation, data collection, forecasting, assumption testing, solution methods, implementation, evaluation, control, and dealing with conflict and ambiguity. Organization of projects in which problem solving is experienced at various levels of complexity.

**444A-444B. Management Field Study.** Must be taken in two consecutive quarters in the second year. Supervised study of an organization, including establishment of client organization/student consultant relationship, identification of problem, 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 interorganizational 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 quarters of the M.B.A. program and consent of the supervising faculty and the director of the 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.

**495. Preparation for Teaching Business and Management.** Prerequisites: graduate standing, consent of instructor. Study of problems and methods in the teaching of management. Includes seminars, workshops, and practice teaching. May not be applied toward the M.B.A., M.S., or Ph.D. degree requirements. S/U grading.

Mr. Frand

The following individual study or research courses (500 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 GSM graduate adviser and Assistant Dean, and host campus instructor, department Chair, and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. S/U grading.

**596A-596N. Research in Management (1 to 8 units each).** Prerequisite: consent of director of master's program or director of Ph.D. program by special petition. Directed individual study or research. May be repeated.

**597. Preparation for Qualifying Examinations (4 or 12 units).** Prerequisite: consent of director of master's program or director of Ph.D. program by special petition. Preparation for master's comprehensive examination or Ph.D. qualifying examination.

**598. Thesis Research in Management (4 or 12 units).** Prerequisite: consent of director of master's program 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 director of Ph.D. program 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).** The course focuses on individual problem solving and decision making skills. Alternative conceptual frameworks are presented for augmenting the individual's diagnostic and decision making skills. Readings, cases, decision simulations, and discussions are used to explore the areas of charting job and career progress, working with others, and shaping the work culture.

Mr. Mason

**462. Economic Analysis for Managers.** The course focuses on policy-oriented problems in antitrust, tax securities, and environmental regulation. Concepts of microeconomic theory are 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.

Mr. Granfield, Mr. Osborne



**463. Data Analysis and Management Decisions under Uncertainty.** The course surveys statistical model building, with emphasis on the managerial interpretation of the statistical summary of data. Classical statistics are covered through multiple regression to support the courses in finance and marketing that follow. The fundamental approaches to decision making under uncertainty are presented.

Mr. Buffa, Mr. Hanssens

**464. Managerial Accounting.** The course familiarizes the manager with the functions of accounting by focusing on the use of external financial reports for evaluating corporate performance and the use of accounting information for internal planning and control.

Mr. Buckley

**465. Quantitative Methods for Managers.** A survey of modeling approaches to managerial planning and decisions. Emphasis on the 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.

Mr. Geoffrion

**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. The course focuses on learning sound theoretical tools and applying them in casework.

Mr. Copeland, Mr. Cornell

**467. Management Information Systems (2 units).** Information systems for management decision making. Emphasis on support of strategic planning and management control functions; computer-based decision support systems; organizational arrangements for performance measurement and control; programing and budgeting systems.

Mr. Greenberger, Mr. Swanson

**468. Economic Forecasting (2 units).** The course is concerned with macroeconomic theory and its application to business forecasting. It covers major economic indicators and their historical description of the U.S. economy; theoretical tools that business economists use to analyze the impacts of monetary and fiscal policy; macroeconomic techniques applicable to business decisions.

Mr. Kimbell

**469. Management of Human Resources.** The course provides an introduction to the major areas of human resource management — personnel management, labor economics, labor law, and labor relations. This is accomplished by examining some of the major concepts, theories, and research related to each of these topic areas, as well as some of the practical problems for managers posed by each.

Mr. Flamholtz

**470A. Introduction to Action Research and Policy Analysis (2 units).** Course deals with action research methods, including futures analysis, problem identification and problem solving, experimental design, survey methods, and interview techniques in organizational settings.

Mr. Mason

**470B-470E. Action Research and Policy Analysis Project (2 units, 1 unit, 1 unit, 2 units).** Four quarters of supervised study of an organization in relation to complex environmental changes. Competitive and environmental analysis of the organization. Development of an action research project and managerial policy scenarios; examination of their organizational implications; and recommendations for managerial and organizational response to deal with environmental changes.

Mr. Erlenkotter, Mr. Raia

**472. Marketing Strategy and Policy.** The course focuses on strategic marketing decisions, including the development of marketing objectives and strategies and the implementation of these strategies through pricing, channel, promotion, and new product decisions.

Ms. Scott

**473. Managerial and Organizational Processes.** The goal is to assist each student in developing an understanding of the workings of large, complex organizations. The focus is on the macroanalytic, rather than on the microanalytic, approach.

Mr. Ouchi

**474. Production and Operations: Systems, Strategies, and Policies.** Analysis of strategic and operating policies and decisions for systems that produce goods and services in enterprises. Examination of the role of broad-level planning, inventories, scheduling of resources, organization of resources, distribution systems, system location. Comprehensive operating problems.

Mr. Buffa

**475. International Managerial Policies and Strategies.** Study of economic and business decisions in an international context, with emphasis on the formulation and implementation of management strategies in multinational enterprises. Application of concepts of international economic analysis and exploration of international corporate strategies.

Mr. Schöllhammer

**476. Competitive Strategy and Business Policy.** The study of the general management task of forging a corporate competitive strategy. Emphasis on the economics of business rivalry within a variety of industrial settings and the implications of changing environments on business strategy.

Mr. Rumelt

**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. The course examines emerging trends in key areas of government regulation, labor relations, international trade, the basic economic structure, and social responsibility.

Mr. Osborne, Mr. Steiner

**478. Seminar on Action Research and Policy Position Papers (2 units).** Course is a capstone experience to the action research project undertaken in courses 470A through 470E. Policy scenarios are explored in a dialectical format similar to that used in congressional hearings. Based on their research projects, student teams prepare position papers, arguments, and compromise positions during the course of these faculty-led policy hearings.

Mr. Cornell, Mr. Mason

# School of Social Welfare

Leonard Schnelderman, Dean



# 13

The profession of social work is one of the principle helping professions. Social workers are employed as policymakers, managers, and practitioners in all of the human services, including physical and mental health, education, income security, housing and the social services, family and child welfare, manpower development and training, corrections, etc. Social work services are offered under public auspices, at all levels of government, under private-for-profit and not-for-profit auspices, and in the workplace. In each setting social work concerns focus on the restoration of impaired social functioning of individuals, groups, communities; the provision of resources, social and individual, which will enhance social functioning; and the control of factors which threaten effective and satisfying social functioning. Social work is also concerned with the causes, treatment, and prevention of personal and social ills and with the broader social and economic issues in society.

In its professional education and practice, social work collaborates with disciplines in the field of health, including physical, mental, and public health programs; law, including the areas of corrections, civil rights, and social legislation; education, with reference to social work in the schools, special needs of handicapped children, and programs developed for children in deprived areas. There is also close collaboration with the applied social sciences in the study of social institutions and social change.

UCLA's School of Social Welfare is considered among the top schools of its kind in the country based on the quality of its programs, its research grants, and its publications. The school's primary objective is to prepare graduate students not only for successful careers but also for imaginative leadership in the social welfare field.

# School of Social Welfare

200 Dodd Hall, 825-2892

## Professors

Jerome Cohen, Ph.D., *Associate Dean*  
 Maurice F. Connery, D.S.W., *Chair*  
 Jeanne M. Giovannoni, Ph.D.  
 Doris S. Jacobson, Ph.D.  
 Alfred H. Katz, D.S.W.  
 Harry H. L. Kitano, Ph.D.  
 Manuel R. Miranda, Ph.D.  
 Leonard Schneiderman, Ph.D., *Dean*  
 Nathan E. Cohen, Ph.D., *Emeritus*  
 Elliot T. Studt, D.S.W., *Emeritus*

## Associate Professors

Rosina Becerra, Ph.D.  
 Warren Haggstrom, Ph.D.  
 Alex J. Norman, D.S.W.  
 Harry Wasserman, D.S.W.

## Assistant Professors

Diane de Anda, Ph.D.  
 James E. Lubben, D.S.W.  
 Carol W. Williams, D.S.W.  
 Laura S. Wiltz, Ph.D.

## Adjunct and Visiting Lecturers

Margaret Bonnell, M.S.W., *Visiting*  
 P. Fred DelliQuadri, M.S.S., *Visiting*  
 Mary Ann Fraser, M.S.W., *Visiting*  
 Maxine Jackson, M.S.W., J.D., R.N., *Visiting*  
 Mary Ann Jimenez, Ph.D., *Visiting*  
 Rosalie Kane, D.S.W., *Visiting*  
 Stan Katz, Ph.D., *Visiting*  
 Barrie Levy, M.S.W., *Visiting*  
 Richard Metzner, M.D., *Visiting*  
 Rose Monteiro, M.S.W., *Visiting*  
 Elizabeth T. Ortiz, D.S.W., *Visiting*  
 Essie T. Seck, D.S.W., *Visiting*  
 David Shapiro, Ph.D., *Visiting*  
 Bernice Sokol, M.S.W., *Adjunct*  
 Gloria Waldinger, D.S.W., *Visiting, Assistant Dean*  
 Ruth Zambrana, Ph.D., *Visiting*

## Fieldwork Consultants

Cheryl Cromwell, M.S.W.  
 Katherine M. Kolodziejski, Ph.D., *Coordinator*  
 Jane E. Kurohara, M.S.W.  
 Joseph Nunn, M.S.W.  
 Jaime Soliz, M.S.W.  
 Winifred E. Smith, M.S.W., *Emeritus*

## Degrees Offered

Master of Social Welfare (M.S.W.)  
 Doctor of Social Welfare (D.S.W.)

The UCLA School of Social Welfare offers an M.S.W. program in Social Welfare and a doctoral program of study leading to the D.S.W. The programs are designed to prepare candi-

dates who wish to train for careers in teaching, research, administration, and practice positions. Courses are scheduled in the School of Social Welfare and in schools and departments of related disciplines and professions.

## Master of Social Welfare

### Admission

In addition to University minimum graduate admission requirements, the master's program of the School of Social Welfare requires a minimum of five courses in the social science or social welfare subjects as prerequisite undergraduate preparation for graduate study in the field of social work. Completion of courses in psychology and sociology is desirable, and a course in statistics is required.

A grade-point average of 3.0 or better is required in all courses taken during the junior and senior years. However, applicants with a GPA below 3.0 may be considered when there is clear evidence of capacity for academic achievement and professional development. In addition, the school 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 Aptitude Test of the Graduate Record Examination 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. The highest GRE Aptitude score achieved will be evaluated for admission. In addition, foreign students whose native language is other than English and whose higher education was not obtained in an English-speaking country are required to take the Test of English as a Foreign Language (TOEFL). The school may request that you take specified examinations 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.

Admission to the school requires simultaneous application to (1) the School of Social Welfare and (2) the Graduate Division. Both applications and the school brochure can be obtained by writing to the UCLA School of Social Welfare Admissions, 200 Dodd Hall, Los Angeles, CA 90024, or by calling 825-7737.

## Major Fields or Subdisciplines

Direct social work practice with individuals, families, and small groups, community organization, and social welfare administration are offered as concentrations in social work methods. Options are available in child and family welfare, health, and mental health.

## Course Requirements

A total of 76 units in courses in the School of Social Welfare is required, including three courses in social welfare policy and services, five courses in the human behavior and social environment sequences, six courses in methods of social work practice, four courses in social welfare research, plus six quarters of field instruction. Appropriate substitutions or waivers may be made by the Dean. You may, by consent of the Dean, take courses in other graduate schools of the University in fulfillment of the degree requirements.

With the consent of the instructor and the Dean, you may substitute tutorial studies of comparable material in the 500 series 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.

## Practicum Requirements

During the first year, concurrent placement for 25 weeks (two to two and one-half days per week) is required; during the second year, concurrent placement for 25 weeks (three days per week) is required.

## Thesis Plan

While no University-approved master's 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.

## 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 may cover the entire range of the program.

## Doctor of Social Welfare

### Admission

In addition to the University minimum requirements, the school requires completion of an M.S.W. degree program with a superior record from an accredited school of social work. This requirement may be waived if an applicant possesses a postgraduate degree and professional experience in a related field. Such candidates, however, will be required to fulfill specified requirements in the M.S.W. program in addition to the normal doctoral requirements.

Admission criteria include the quality of your performance in previous undergraduate and graduate study, capacity for doctoral-level scholarship, ability to express yourself clearly in writing, success in professional employment and other pertinent experience, results of the Graduate Record Examination, and personal qualifications indicating suitability for advanced study and research.

The Aptitude Test of the Graduate Record Examination is required, as are official transcripts from every school attended since high school. In addition, foreign students whose native language is other than English and whose higher education was not obtained in an English-speaking country are required to take the Test of English as a Foreign Language (TOEFL). The school may request that you take specified additional examinations to assist in the assessment of candidacy for admission.

Five letters of recommendation and a typewritten statement of professional and educational objectives are required. To exemplify your communication skills, you may submit any of the following: published articles, master's thesis, or other theoretical/research-oriented unpublished papers.

Although a personal interview is not required as part of the application procedure, whenever possible a conference is arranged with a member of the doctoral faculty.

Prospective students must apply separately to the School of Social Welfare and to the Graduate Division. Both applications and the school brochure are available by writing to the UCLA School of Social Welfare Doctoral Program, 200 Dodd Hall, Los Angeles, CA 90024.

### Major Fields or Subdisciplines

The core curriculum is the same for all students. Programs of specialized study relevant to the substantive area of the dissertation,

which include courses in other schools and departments of the University as well as seminars and tutorials within the school, are developed in consultation with the adviser.

### Course Requirements

Courses required for the degree normally cover a two-year span of study. All first-year course requirements must be completed before taking the qualifying examinations.

Required courses for the first year are Social Welfare 225A-225B, 245A-245B-245C, and 286A-286B-286C. In addition, a one-quarter course may be required in an area to be selected by the doctoral program committee, depending on the educational needs and interests of the first-year class.

Required courses for the second year are Social Welfare 210A-210B. A third course, which may be a seminar or individual or small group tutorials, is also required.

In addition to these requirements, you must take a minimum of three quarters in a graduate school or department outside the School of Social Welfare in an area related to your professional objectives, with consent of your adviser. In exceptional instances, you may obtain either a waiver of or substitution for a required course. Ordinarily, students in full-time study will be expected to enroll in at least 12 units of study each quarter during the first two years and at least eight units per quarter thereafter.

A practicum may be required as a component of one or more courses, although it is not a general program requirement.

### Qualifying Examinations

Before the formation of a doctoral committee, you must pass a written qualifying examination in each of the three core areas, as follows: (1) social welfare policy, history, and philosophy; (2) social work practice theory; and (3) research and scientific inquiry (philosophy and values, research methodology, research design, and behavioral concepts utilized in social welfare). The emphasis in these examinations is on your ability to integrate the knowledge gained from the several substantive areas for dealing with problems and issues of the field of social welfare at various levels — theoretical, operational, and evaluative.

The written qualifying examinations are graded on a pass/fail basis. In case of failure with permission to retake one or two of the three examinations, you are required to retake only the examination(s) which was failed. You will ordinarily be required to take the examinations in June of the first year of study; any retaking of examinations will ordinarily take place in September.

The University Oral Qualifying Examination for advancement to candidacy covers the dissertation proposal and related areas, and is administered by your doctoral committee. The

written qualifying examinations must be successfully completed prior to the oral examination.

### Final Oral Examination

A final oral examination may be required at the option of the doctoral committee.

### Graduate Courses

**201A-201B-201C. Dynamics of Human Behavior I, II, III (2 units each).** Biopsychosocial factors associated with individual and group behavior and development as applicable in the 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: Deviance IV, V (2 units each).** Prerequisites: courses 201A-201B-201C. The course deals with deviations and pathologies or stresses in the physical, emotional, and social areas of human functioning as those problems relate to the role and function of the social worker.

**203. Integrative Theory and Research in Human and Social Behavior (2 units).** An integrative course which brings together the preceding courses in the human behavior and social environment series by examination at an advanced level of the major theoretical strands and the identification of problem areas requiring further research.

**204A. Social Systems in Social Welfare (2 units).** The application of social system theory to the problems of social welfare and social work. Analysis of the network of community relationships, values, stratification, institutions, and subcultures as related to the premises and services of social work.

**204B. Small Groups in Social Welfare (2 units).** Application of theory and knowledge of small group functioning to problems of working with groups in social work settings. Analysis of group formation, structure of interaction and communication patterns, and leadership and morale problems. Application to family, peer, and special-purpose groups.

**205. Group Conflict and Change (2 units).** Study of the 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.

**210A-210B-210C. Social Ecology.** Prerequisites: doctoral standing and/or consent of instructor. Exploration of data and theories from the biological and policy sciences regarding ecological relationships. Review of current biophysical, sociocultural, demographic, technological, economic, and political changes as they affect human society, its institutions and, more particularly, social welfare needs.

**220. History and Philosophy of Social Welfare (2 units).** The history of social work as a field: body of knowledge, method and process, and point of view analyzed within the context of the economic, political, social, philosophical, and scientific climate of the period.

**221A. Social Welfare Policy and Services I (2 units).** 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.

**221B. Social Welfare Policy and Services II (2 units).** Understanding of the significant theoretical constructs and relevant empirical evidence dealing with how organizations develop and maintain their internal functions. Develops beginning skill in organizational analysis. Special attention to organizational analysis of social welfare services.

**222A-222B-222C. Social Welfare Administration I, II, III (2 units each).** Prerequisites: graduate standing and/or consent of instructor. Study of methods by which welfare policies are formulated and translated into action; the nature of organizational and research processes involved in welfare administration; role of welfare agency personnel in policy formulation, implementation, and evaluation.

**223. Seminar on the Social Work Profession (2 units).** The 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.

**224A-224B-224C. Advanced History and Philosophy of Social Welfare.** Prerequisites: doctoral standing and/or consent of instructor. Analysis of long-term trends in welfare policies and programs in relation to political, economic, and other relevant factors. Philosophical foundations underlying social welfare theories, programs, and methods are explored and values, assumptions, and attitudes historically affecting social welfare examined.

**225A-225B-225C. Social Welfare Systems.** Prerequisites: doctoral standing and/or consent of instructor. Analysis of theories of organizational behavior affecting social welfare systems (including supranational systems transcending national boundaries), their directions, goals, values, and relationships to social work. Application of organizational theory to planning, organizing, and administering welfare agencies is stressed.

**227A-227B-227C. Comparative Social Welfare Theories and Programs.** Prerequisites: doctoral standing and/or consent of instructor. Analysis of interrelationships between nations' welfare services and the social, economic, religious, and broader cultural milieus within which they develop. Special attention to social theories, value systems, and other elements of culture which particularly affect welfare programs.

**230A-230B-230C. Theory of Direct Social Work Practice I, II, III (2 units each).** Corequisite: required social work practicum. An introduction to the theory of social work with individuals and small groups and to the principles of practice which are derivative of this and related theory.

**231A-231B-231C. Advanced Theory of Direct Social Work Practice IV, V, VI (2 units each).** (Formerly numbered 231A-231B.) 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. Theory of Social Work Practice in Community Organization I, II, III (2 units each).** Corequisite: required social work practicum. Historical and theoretical developments in community organization; understanding the community as a social system; role of the practitioner in identification, analysis, and evaluation of needs, existing programs, policies, structures, and strategies of intervention.

**241A-241B-241C. Advanced Theory of Social Work Method (Community Organization) IV, V, VI (2 units each).** (Formerly numbered 241A-241B.) 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 the context of community planning; emerging patterns of physical, economic, and social planning within the framework of social change theory.

**M242. Counseling Families of Handicapped Children (2 units).** (Same as Psychiatry M254.) Prerequisite: consent of instructor. 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.

Ms. Gottlieb (W)

**245A-245B-245C. Development of Social Work Practice Theory.** Prerequisites: doctoral standing and/or consent of instructor. Critical analysis of social work practice theories in historical, social, and scientific contexts, with attention to how theory becomes modified through application to practice.

**258. Critical Problems in Social Welfare.** Prerequisites: doctoral standing and/or consent of instructor. Current problems in the field of social welfare. Specific topics vary depending on the research and educational interests and needs of the class. May be repeated for credit.

**M275. Family Process: Psychological and Social Perspectives on the Family.** (Same as Psychology M275.) The course reviews various theoretical perspectives applicable to the analysis of family structure and dynamics. Critical issues in the application of family constructs to clinical problems receive particular attention.

Mr. Cohen, Mr. Goldstein

**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 the development of research knowledge and techniques for social work practice. In Progress grading.

**285A-285B-285C. Research in Social Welfare.** Prerequisites: doctoral standing and/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.

**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. Seminar in Social Work (2 units each).** A 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.

**401A-401B-401C. Practicum in Social Work.** Laboratory, twenty hours. Educationally directed practicum conducted in selected health, welfare, and educational facilities. The major objective is to provide opportunities for students to test their theoretical knowledge and to acquire a disciplined practice foundation in the profession.

**402A-402B-402C. Advanced Practicum in Social Work (6 units each).** Laboratory, twenty-four hours. Prerequisites: courses 401A-401B-401C. Practicum in social work is arranged for students in keeping with their major field of study.

**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. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. 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 D.S.W. Candidates (2 to 8 units).** Prerequisites: doctoral standing and/or consent of instructor. S/U or letter grading.

**597A. Preparation for M.S.W. Comprehensive Examination (2 to 8 units).** Prerequisite: consent of instructor.

**597B. Preparation for D.S.W. Qualifying Examination (2 to 8 units).** Prerequisites: doctoral standing and/or consent of instructor.

**599. D.S.W. Dissertation Research (2 to 8 units).** Prerequisites: doctoral standing and/or consent of instructor.

# School of Dentistry

James R. Hooley, Dean

# 14



One of the most recent health science teaching programs at UCLA, the School of Dentistry is growing rapidly in stature and reputation. Challenging educational and training 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 dental care early 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 will do in a private or group practice.

Opportunity exists for dental students to undertake programs designed to meet their special needs. Senior-year electives encourage more advanced training in an area of particular interest, and a required general practice course is currently being designed. In addition to basic and applied research programs within the school, students participate in community service programs such as the Venice Dental Clinic and the Mobile Dental Clinic, the latter in conjunction with the University of Southern California. Postdoctoral study can be undertaken in one of several dental specialties, and an active continuing education program through University Extension provides a variety of short courses for members of the dental profession and their auxiliaries.

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*Photo: Ultrastructural design of a minute section of human dental enamel viewed through an electron microscope.*



# School of Dentistry

## A3-042 Dentistry, 825-6141

The UCLA School of Dentistry, which occupies facilities in the Center for Health Sciences, offers a D.D.S. (Doctor of Dental Surgery) degree program, a number of postdoctoral programs, and an Oral Biology M.S. degree program. Concurrent D.D.S. and M.S. or certificate programs are also available. This catalog provides detailed information only on the M.S. program in Oral Biology, for which admission to the School of Dentistry is not required.

### Degrees Offered

Doctor of Dental Surgery (D.D.S.)  
Master of Science in Oral Biology

## 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 two required summer quarters between the sophomore/junior and junior/senior 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 science courses, didactic dental courses, and clinical experience. The first two years of the curriculum are chiefly devoted to didactic coursework in the basic health and dental sciences. 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, UCLA School of Dentistry, Los Angeles, CA 90024. You are also referred to Chapter 5 for details on the three-year predoctoral curriculum offered by the College of Letters and Science.

## Postdoctoral Programs

The School of Dentistry offers the following opportunities for postdoctoral study: a one-year general practice residency program; a one-year residency in maxillofacial prosthodontics; a three-year oral and maxillofacial surgery residency training program; a three-year combined orthodontic-pediatric dentistry program; and two-year programs in the specialties of orthodontics, pediatric dentistry, periodontics, and prosthodontics.

Information on these postdoctoral programs can be obtained by writing directly to their respective directors, UCLA School of Dentistry, Los Angeles, CA 90024.

## Oral Biology

### 63-090 Dentistry, 825-1955

#### Professors

George W. Bernard, D.D.S., Ph.D.  
John Beumer, III, D.D.S., M.S. (*Restorative Dentistry*)  
Angelo A. Caputo, M.S., Ph.D. (*Biomaterials Science*)  
Fermin A. Carranza, Jr., D.D.S., Dr. Odont. (*Periodontics*)  
Spiro J. Chaconas, D.D.S., M.S. (*Orthodontics*)  
Andrew D. Dixon, D.D.S., M.D.S., Ph.D., D.Sc. (*Orthodontics*)  
Colin K. Franker, Ph.D.  
Louis J. Goldberg, D.D.S., Ph.D., *Chair*  
Douglas Junge, Ph.D.  
E. Barrie Kenney, D.D.S., M.S. (*Periodontics*)  
Frank J. Kratochvil, D.D.S. (*Removable Prosthodontics*)  
Larry S. Luke, D.D.S., M.S. (*Clinical (Pediatrics)*)  
Carol M. Newton, M.D., Ph.D. (*Biomathematics*)  
Max H. Schoen, D.D.S., M.P.H., Ph.D. (*Public and Preventive Dentistry*)  
G. Douglas Silva, F.D.S., M.R.C.S. (*Oral Medicine*)  
William K. Solberg, D.D.S., M.S.D. (*Restorative Dentistry*)  
Robert P. Thyne, D.M.D., M.S. (*Clinical (Restorative Dentistry)*)  
Stuart C. White, D.D.S., Ph.D. (*Oral Radiology*)  
Alfred Weinstock, D.D.S., Ph.D. (*Periodontics*)  
Fred Herzberg, D.D.S., M.S., *Emeritus*  
Norman S. Simmons, D.M.D., Ph.D., *Emeritus*

#### Associate Professors

Glenn Clark, D.D.S., M.S. (*Gnathology*)  
Joseph P. Cooney, D.D.S., M.S. (*Restorative Dentistry*)  
Donald F. Duperon, D.D.S., M.Sc. (*Pediatric Dentistry*)

Jay Gershen, D.D.S., Ph.D. (*Pediatric Dentistry*)  
No-Hee Park, D.M.D., Ph.D.  
George R. Riviere, D.D.S., M.S., Ph.D. (*Pediatric Dentistry*)  
John A. Yagiela, D.D.S., Ph.D.

#### Assistant Professors

Russell Christensen, D.D.S., M.S. (*Oral Diagnosis*)  
Patrick Turley, D.D.S., M.Ed. (*Orthodontics*)  
Lawrence Wolinsky, D.D.S., Ph.D.

#### Adjunct Professor

Bernard G. Sarnat, M.D., D.D.S.

#### Adjunct Associate Professor

Michael G. Newman, D.D.S. (*Periodontics*)

## Scope and Objectives

The M.S. program in Oral Biology is intended to prepare students for teaching and research careers in dentistry or simply to introduce them to modern approaches to research in the biology of the oral-facial area. The core curriculum is made up of basic science courses in embryology and histology, microbiology, immunology, physiology, neurophysiology, biology of bone, biochemistry of caries, pharmacology, and therapeutics, all directly related to oral-facial problems. In addition, students take concurrent courses in research methods and scientific writing, a course in biostatistics, and any of several electives in related areas.

All students carry out a thesis project, working in a laboratory in the School of Dentistry, Dental Research Institute, or other divisions of the Center for Health Sciences. Each is exposed to modern research methodology and is supervised by a faculty member with research experience. Many students are in cooperative D.D.S./M.S. programs or resident programs in specialty areas, and many are dentists trained in other countries.

## Master of Science Degree

### Admission

Applicants are expected to have an acceptable bachelor's degree with a strong background in the biological and chemical sciences or a Doctor of Dental Surgery degree or the equivalent (i.e., D.M.D.) from an accredited university. The Graduate Record Examination and the Dental Aptitude Test are not required but may be submitted. Three letters of recommendation are required as part of the admissions packet. There is no separate application form

other than that required by the Graduate Division. Foreign students will be considered individually after evaluation of their curriculum and training and must take an English language proficiency examination. For further information, contact the Graduate Adviser, Oral Biology Section, UCLA School of Dentistry, Los Angeles, CA 90024.

### Major Fields or Subdisciplines

Areas of specialization or subdisciplines which may be followed to complement or complete the degree requirements include anatomy, biological chemistry, cell biology and virology, immunology, microbiology, pharmacology, and physiology.

### Course Requirements

The program requires a total of nine courses, five of which must be at the graduate level. Seven graduate core courses are required: Oral Biology 202, 204, M205, M206, 207, 208, M214. These should be taken during the first year of graduate study. Course 490, which focuses on the preparation of scientific writing and communication, and Biomathematics 170A are both required for completion of the degree.

Courses 596 and 598 are required 500-series courses. You are eligible to take two to eight units at a time on an S/U grading basis as many times as needed. A maximum of eight units of 500-series courses may be applied toward the total course requirement, of which four units may be applied toward the minimum graduate course requirement.

### Thesis Plan

The master's thesis is intended to demonstrate your ability to design and carry out a research project, and analyze and present the resulting data. Publishable scientific results are thus not required, although the thesis must be prepared according to high standards of experimental design and data analysis. The subject of the thesis must be approved by the graduate adviser and by the faculty member who will direct the work of the thesis. After completing course requirements, you should prepare and send to your graduate committee a brief description of the proposed research project. The committee will then discuss the proposal with you and make suggestions.

The thesis should be prepared mainly in consultation with the sponsor, although other committee members will be available for assistance. At least two weeks should be allowed between completion of the thesis and termination of the program, to allow committee members to read and comment on the manuscript.



### Articulated Degree Program

The M.S. degree in Oral Biology has been structured so that students pursuing a dental degree or certificate in the UCLA School of Dentistry have an opportunity to participate in the program. These students must submit a separate application to Graduate Admissions.

### Graduate Courses

**202. Principles and Methods of Research.** Lecture, one hour; laboratory, three hours. Designed to familiarize the student with the experimental method and its application to basic and applied research. It includes experimental method and design and interpretation of data. The student is exposed to research instrumentation and the advantages and limitations of various investigative tools.

Mr. Junge and the Staff (W)

**M203. Oral Embryology.** (Same as Anatomy M203.) Lectures and laboratory instruction in the development and histological structure of the facial region and the oral and peri-oral organs and tissues.

Mr. Bernard and the Staff (Sp)

**204. Antibiotics and Antimicrobial Agents (2 units).** The course is a summary of current information on the chemistry, synthesis mode of action, and mechanism of resistance for generically grouped antimicrobial substances. Emphasis also on pharmacokinetic complications of antibiotic usage.

Mr. Franker (Sp)

**M205. Oral Physiology.** (Same as Physiology M203.) Lecture, one hour; discussion, one hour. The organ-level and cellular physiology of the following systems is discussed, in a somewhat flexible framework: (1) salivary glands, including the mechanisms of secretion, abnormalities such as Mikulicz-Sjorgren syndrome, and effects on the dentition; (2) dental pulp: development, normal physiology, and reparative mechanisms; (3) organization of sensory systems, receptors, pathways, and central projections; (4) dental pain mechanisms, hydrodynamic theory, and electrical recordings from dentin; (5) taste receptors: mechanisms of perception of four basic tastes, alterations of taste caused by drugs, diseases, and aging; (6) oral touch and temperature receptors: comparison with similar systems in the skin, assessment of sensory dysfunction; (7) speech: phonation, resonance, and articulation in speech production, normal time-course of development of various sounds in children. Classes are supplemented with audiovisual materials and many references from the literature.

Mr. Junge (F)

**M206. Secretory and Gastrointestinal Immunity (2 units).** (Same as Microbiology and Immunology M206.) The anatomy and physiology of the oral cavity, the intestines, and the related lymphatic and blood vascular systems are reviewed in reference to the immune system. The secretory and systemic immune systems are discussed in detail, with particular emphasis on the unique properties of SIgA. The ability to process enteric antigens, to respond, and to regulate enteric immunity is discussed in terms of recent experimental findings. The role that enteric immunity may play in diseases of the GI tract, such as dental caries and inflammatory bowel diseases, is presented. Students participate in discussions following each lecture and present seminars based on a review of the relevant scientific literature.

Mr. Riviere (Sp, alternate years)

**207. Brainstem Control of Rhythmical Movements (2 units).** Discussion of the central nervous system mechanisms which coordinate and control the contraction patterns of the muscles which are involved in behaviors such as suckling, chewing, swallowing, speech, respiration, and locomotion. Emphasis on the interaction among brainstem reflexes, pattern generators, and "voluntary" control centers.

Mr. Goldberg

**208. The Biochemistry of Saliva and Dental Caries (2 units).** A seminar in which current research in the field of saliva biochemistry and its relationship to the development of dental caries are discussed. Each student is expected to present a current article for discussion.

Mr. Wolinsky (W)

**M214. Biology of Bone (2 units).** (Same as Anatomy M225.) Lecture, two hours; discussion, one hour. Prerequisite: consent of instructor. Embryology of bone tissue; bone as an organ; growth and development of specific bones; biochemistry and physiology of bone; remodeling of bone; crystallography of hydroxyapatite; pathological calcifications; pathology of bone; mechanisms and lineage of calcification; clinical correlations.

Mr. Bernard (W)

**M224A-M224B. Structure and Chemistry of Connective Tissue (2 units each).** (Same as Anatomy M224A-M224B.) Prerequisites: histology, biochemistry. A seminar course designed for graduate students in dentistry, medicine, or basic science. Fundamental information on the fine structure and chemical composition of bone, dentin, cementum, cartilage, and cells of connective tissue in general, as well as enamel, with emphasis on the biosynthesis of collagen, noncollagenous proteins and glycoproteins, and glycosaminoglycans (mucopolysaccharides). The possible roles of the cellular and noncellular elements in the process of biological mineralization and correlation of biological processes to periodontal pathology. In Progress grading.

Mr. Weinstock and the Staff (F,W, alternate years)

**225. Gross Postnatal Craniofacial Growth and Development (2 units).** Designed primarily to develop a critical sense in the evaluation of the research literature and an appreciation of the dynamic complexity of postnatal craniofacial growth. At each session students present reviews and critiques of original articles, followed by group discussion. Specific aspects of the following general topics on growth of bone and bones are considered in detail: historical review; modes of growth; general and craniofacial (mandible, midface, cranium) growth; methods of assessing; factors affecting; and conflicting hypotheses. Students are encouraged to pursue their particular interest.

Mr. Sarnat (Sp)

**226A-226B. Craniofacial Growth and Development (2 units each).** Prerequisite: strong background in histology and embryology. Students acquire, from scientific literature discussed in a lecture/seminar format, advanced knowledge of relevant aspects of human biology as they apply to classic and current concepts of the principles governing growth and development of the craniofacial region. Students are required to present seminars on assigned topics which aid their understanding and analysis of the course content that has application to their specific and professional fields. In Progress grading.

Mr. Dixon and the Staff (F,W)

**227. Dental Embryology and Histology (1 unit).** Description and interpretation of important stages in the development of the orofacial apparatus and histological features of its component tissues. The student critiques scientific literature relevant to the course content and analyzes the current state of knowledge about selected features of the orofacial apparatus which are of significance to the clinical dental specialist.

Mr. Dixon (F)

**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.

Mr. Hankinson, Mr. Seeger (W)

**490. Professional Writing for Dentistry (2 units).** Prerequisite: consent of instructor. Workshop in scholarly publication. Analysis of syntactic, rhetorical, and stylistic features of scientific prose helps students see the relationship of language to abstract thought and of writing to research. Coordinates with course 202. May be repeated once for credit. S/U grading.

Mr. Bjork (W)

**596. Directed Individual Study or Research (2 to 4 units).** S/U grading.

**598. Thesis Research and Preparation (2 to 4 units).** S/U grading.

# School of Medicine

Sherman M. Mellinkoff, Dean

# 15



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 UCLA Medical Center and Los Angeles County Harbor/UCLA Medical Center, in the Health Sciences Computer Center, in the 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, 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 11 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 one of the nation's eight hospital-based biomedical cyclotrons producing shortlived radioisotopes for research and diagnostic nuclear medicine procedures.

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*Photo: Technician operates UCLA's biomedical cyclotron.*

# School of Medicine

12-109 Center for Health Sciences,  
825-6081

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, 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.

## 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 and laboratory sessions, demonstrations, and tutorials. In the last two years, instruction in patient care is given in the form of required and elective clinical clerkships at the UCLA Medical Center or at one of 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 are urged to obtain a copy of the *Announcement of the UCLA School of Medicine* from the Office of Student Affairs, UCLA School of Medicine, Los Angeles, CA 90024. You are also referred to Chapter 5 of this catalog for details on the four-year premedical studies program offered by the College of Letters and Science.

## Graduate Programs

Master's and/or doctoral degrees are offered through the Graduate Division in the following fields: anatomy, nurse anesthesia, biological chemistry, biomathematics, medical physics (Department of Radiological Sciences), microbiology and immunology, neuroscience, ex-

| Graduate Degrees Offered                      |                      |
|---|----------------------|
| Anatomy .....                                 | 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         |                      |
| Social Psychiatry .....                       | M.S.P.**             |
| Clinical Psychology Internship .....          | Certificate          |
| Radiological Sciences (Medical Physics) ..... | M.S., Ph.D.          |

\*The department admits only applicants whose objective is the Ph.D.

\*\*Not admitting new students at this time.

perimental pathology, pharmacology, physiology, and psychiatry and biobehavioral sciences. Detailed information on these programs, for which admission to the School of Medicine is not required, is provided in the departmental listings which follow.

## Additional Programs

### Cooperative 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 six to 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 Associate Dean for Education in Medical Science at 891-2335.

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, health record administrator, respiratory therapist, vocational nurse, medical technologist, nurse anesthetist, operating room nurse,

physician's assistant, physical therapist, prosthetist-orthotist, radiologic electronics specialist, radiologic technologist, radiation therapy technologist, and ultrasound technologist.

Information relative to these programs may be obtained from the Office of Allied Health in the UCLA Center for Health Sciences (825-6711).

### 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 offered 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.

# Anatomy

73-235 Center for Health Sciences,  
825-9555

## Professors

George W. Bernard, D.D.S., Ph.D.  
P. Dean Bok, Ph.D. (*Dolly Green Professor of Ophthalmology*)  
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.  
Earl Eldred, M.D., *Vice Chair*  
Jerome Engel, M.D., Ph.D.  
Louis J. Goldberg, D.D.S., Ph.D.  
Roger A. Gorski, Ph.D., *Chair*  
Ronald M. Harper, Ph.D.  
Lawrence Kruger, Ph.D.  
Richard N. Lolley, Ph.D., *in Residence*  
David S. Maxwell, Ph.D.  
Daniel C. Pease, Ph.D.  
Charles H. Sawyer, Ph.D.  
Arnold B. Scheibel, M.D.  
John D. Schlag, M.D.  
José P. Segundo, M.D.  
G. Douglas Silva, F.D.S., M.R.C.S., L.R.C.P. (*Dentistry and Medicine*)  
M.B. Stermann, Ph.D., *in Residence*  
Anna N. Taylor, Ph.D., *in Residence*  
Bernard Towers, M.B., Ch.B., M.R.C.S., L.R.C.P.  
Jaime R. Villablanca, M.D., *in Residence*  
Charles D. Woody, M.D., *in Residence*  
Richard W. Young, Ph.D.  
Mary A.B. Brazier, Ph.D., *Emeritus, in Residence*  
John D. French, M.D., *Emeritus*  
H.W. Magoun, Ph.D., *Emeritus*  
Richard E. Ottoman, M.D., *Emeritus*  
Reidar F. Sognnaes, D.M.D., Ph.D., *Emeritus*

## Associate Professors

Anthony M. Adinolfi, Ph.D.  
John H. Campbell, Ph.D.  
Emilio E. Decima, M.D.  
John K. Lu, Ph.D.  
Guido A. Zampighi, D.D.S., Ph.D.  
Emery G. Zimmermann, M.D., Ph.D.

## Assistant Professor

Paul E. Micevych, Ph.D.

## Adjunct, Clinical, and Visiting Professors

Stanley J. Gross, M.D., *Adjunct*  
Frances S. Grover, Ph.D., *Adjunct*  
Raymond J. Last, M.D., F.R.C.S., *Visiting*  
Alfred Weinstock, D.D.S., Ph.D., *Clinical*

## Adjunct and Clinical Associate Professors

Earle E. Crandall, M.D., Ph.D., F.A.C.S., *Clinical*  
Carlos A.E. Lemmi, Ph.D., *Adjunct*  
James F. McGinnis, Ph.D., *Adjunct*  
Anselmo R. Pineda, M.D., *Clinical*

## Adjunct Assistant Professors

Margaret N. Shouse, Ph.D.  
Gary C. Sieck, Ph.D.

## Adjunct Lecturer

David I. Whitmoyer, Ph.D.

## Scope and Objectives

The Department of Anatomy offers advanced training leading to the Ph.D. degree. The great majority of students graduating with a doctoral degree in anatomy can look forward to an academic career in medical or dental schools and, in accord with this, the department strives to produce graduates soundly qualified both for teaching of anatomical subjects at this level and for the conduct of productive research in morphology or in some related area. An M.S. degree is also available to individuals whose major interests and training lie in allied paramedical fields, postgraduate medicine, or dentistry. The department does not offer an undergraduate degree. An informational brochure may be obtained by writing to the Vice Chair, Department of Anatomy, UCLA School of Medicine, Los Angeles, CA 90024.

## Requirements for Graduate Degrees

### Admission

Applicants must have a bachelor's degree in a physical or biological science or in a premedical curriculum. Introductory courses in zoology, one year of general and organic chemistry, and one year of college physics are required. Deficiencies in these courses must be made up before admission. Courses in comparative anatomy, embryology, cell biology, genetics, elementary statistics, and the philosophy of science are highly recommended.

You must submit (1) transcripts of grades for all college-level work; (2) the results of the Graduate Record Examination, including the Advanced Test in Biology or in your undergraduate major; (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 your background, work experience, interests, and career goals. Selected applicants will be asked to an interview with an admissions committee of faculty and graduate students.

### Major Fields or Subdisciplines

The major fields in which graduate research may be undertaken include (1) neuroanatomy and neurophysiology, (2) neuroendocrinology, and (3) cell biology, including immunology.

## Master of Science Degree

The M.S. degree in Anatomy is available to applicants who have specialized objectives (e.g., students in bioengineering, medical illustration, physical therapy, and other paramedical specialties), as well as to foreign students who can plan only a limited stay in this country. Provision can also be made for medical and dental professionals at the postdoctoral level

who wish to pursue a limited research project and will satisfy all requirements of the program.

## Course Requirements

A total of 36 units of coursework is required, 20 of which must be in graduate-level courses. Eight units of Anatomy 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 101 (eight units), M206A-M206B (12 units), and 207A-207B (12 units); one departmental seminar; other courses essential to the student's program; courses in the minor field (for those under the comprehensive plan).

## Thesis or Comprehensive Examination Plan

You may elect either the thesis or examination plan. For the thesis plan, a committee of the adviser and two department members approves the thesis proposal after all coursework is completed (usually at the start of your second academic year). All members participate in criticism and approval of the eventual thesis. There is no oral defense. Under the comprehensive examination plan, you must demonstrate in a written examination your grasp of the general principles of anatomy, as well as an understanding of some related field relevant to your objectives.

## Ph.D. Degree

### Course Requirements

(1) Basic knowledge of the fields of gross and microscopic anatomy and of the physiology and biochemistry of the mammalian organism. Normally this requirement is satisfied by successful completion of these major courses: (a) human gross anatomy, (b) human microscopic anatomy, (c) neurosciences, (d) mammalian physiology, and (e) biological chemistry.

(2) Participation in at least two departmental seminars.

(3) Completion of such other courses as are essential for your research interest.

(4) Completion of a "breadth requirement" which consists of the equivalent of eight units of work selected to augment the dissertation project. This may be satisfied by a foreign language examination.

### Teaching Experience

Since the anatomy profession generally imposes relatively heavy teaching obligations, it is strongly recommended that students seek opportunities to gain teaching experience in the major anatomy courses, gross anatomy in particular.



## Qualifying Examinations

The written comprehensive examination is intradepartmental and intended to evaluate the capacity to organize and integrate information gained in the major core courses (excluding biochemistry). All students are required to take the examination before the second year. After passing this examination and spending perhaps a year in a laboratory, taking seminars, and reading in the field of research interest, you take a University Oral Qualifying Examination before an ad hoc doctoral committee which evaluates your knowledge of the research field and ability to formulate a practicable and significant research program.

The Anatomy Department 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 qualified and sufficient guidance, or is for other reasons not adaptable to the program.

## Final Oral Examination

After completion of the research and writing of the dissertation, a final public seminar is given, and the dissertation is defended in a final oral examination before the doctoral committee in closed session.

## Candidate in Philosophy Degree

You are eligible to receive the C.Phil. degree upon advancement to candidacy for the Ph.D.

## Upper Division Courses

**101. Microscopic Anatomy (8 units).** Lecture/laboratory, four three-hour sessions. Prerequisite: medical student standing or consent of instructor. Microscopic study of the tissues and organs of the human body. Ms. Dirksen, Mr. Young, and the Staff (F)

**102A-102B. Gross Anatomy of the Human Body (2 units, 8 units).** Lecture, one hour; laboratory, four hours (Winter). Lecture, four hours; laboratory, twelve hours (Spring). Prerequisite: dental student standing or consent of instructor. Systemic and topographical human anatomy, with dissection of the human cadaver. Emphasis on head and neck. In Progress grading. Mr. Harper and the Staff (W,Sp)

**103A-103B. Basic Neurology (1 unit, 3 units).** Lecture/laboratory, two four-hour sessions and one three-hour session (Winter — last three weeks); two two-hour sessions and two three-hour sessions (Spring). Prerequisite: medical student standing or consent of instructor. Corequisites: Physiology 103A-103B. Lectures, conferences, demonstrations, and laboratory procedures necessary for an understanding of the functions of the human nervous system. In Progress or letter grading. Mr. Schlag and the Staff (W,Sp)

**104. Mammalian Histology (6 units).** Lecture/laboratory, three three-hour sessions. Prerequisite: dental student standing or consent of instructor. Lectures, demonstrations, and laboratories dealing with the structural organization of tissues and organs at the microscopic level. Mr. Campbell and the Staff (F)

**105A-105B. Gross Anatomy (8 units, 4 units).** Lecture/laboratory, four four-hour sessions (Fall); one three-hour, one four-hour, and one five-hour session (Winter — first seven weeks). Prerequisite: medical student standing or consent of instructor. Lectures and dissection of the human body. In Progress grading. Mr. Sawyer and the Staff (F,W)

**106. Mammalian Neurology.** Lecture/laboratory, one one-hour session and one four-hour session. Prerequisite: dental student standing or consent of instructor. Lectures, demonstrations, and laboratories dealing with the fundamental structure and functional organization of the nervous system.

Mr. Adinolfi and the Staff (W)

**199. Individual Special Studies (2 to 8 units).** Prerequisite: consent of instructor. Studies in anatomy and related subject areas appropriate for the training of 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. Structure and Function of Cells and Tissues (2 units).** Lecture, one hour; discussion, one hour. Prerequisites or corequisites: course 101, consent of instructor. Current topics on structural and functional aspects of microscopic anatomy. May be repeated for credit. S/U grading. Mr. McGinnis (F)

**M203. Oral Embryology.** (Same as Oral Biology M203.) Lectures and laboratory instruction in the development and histological structure of the facial region and the oral and peri-oral organs and tissues.

Mr. Bernard and the Staff (Sp)

**M206A-M206B. Neurosciences: The Introductory Course for Graduate Students (5 units, 7 units).** (Same as Neuroscience M206A-M206B.) Lecture, three hours; laboratory, two hours (Winter). Lecture, six hours; laboratory, two hours (Spring). Prerequisite: a course (or equivalent) in basic and/or general physiology (such as Biology 171 or Physiology 101) or consent of instructor. Introductory course in the basic principles of the nervous system for graduate students as a prerequisite to more advanced courses. Fundamental approaches to neuroanatomy (Winter) and neurophysiology and the brain mechanisms for behavior (Spring) are stressed. In Progress grading. Mr. Decima, Mr. Scheibel, and the Staff (W,Sp)

**207A-207B. Gross Anatomy (8 units, 4 units).** Lecture/laboratory, four four-hour sessions (Fall); one three-hour, one four-hour, and one five-hour session (Winter — first seven weeks). Prerequisite: consent of instructor. Lectures and dissection of the human body. In Progress grading.

Mr. Sawyer and the Staff (F,W)

**208A-208B. Electronics for Neuroscientists.** Lecture, two hours; laboratory, four hours. Prerequisite: consent of instructor. To develop an understanding of electronic methods used in neuroscience. Basic principles of passive networks, operational amplifiers, semiconductor theory, digital logic, waveform generation, signal conditioning, data acquisition methods, and neurophysiological instrumentation systems. S/U or letter grading. Mr. Whitmoyer (F,W)

**209. Fine Structure and Function in the Central Nervous System (2 units).** Prerequisite: basic neurology. Lectures and discussion of the fine structure of selected areas of the central nervous system, together with related electrical and biochemical patterns of activity.

Mr. Scheibel (F, even years)

**210A-210B. Inflammatory Components in Neoplasia and Immunity (2 units each).** Prerequisite: consent of instructor. Fall Quarter sessions consist of one-hour lectures on the various components of inflammation and other nonspecific systems and their interrelation with neoplasia and specific immune phenomena. Current research literature is discussed during the second hour. Winter Quarter sessions consist of presentations by invited guests involved in research in the specialty areas covered in Fall Quarter. Organized discussions follow these presentations.

Mr. Lemmi and the Staff (F,W)

**211. Cellular Basis of Learned Behavior (2 units).** 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.

Mr. Woody (F)

**212. Neural Mechanisms of Inhibition (2 units).** Prerequisite: basic neurology. A systematic consideration of inhibitory processes in the nervous system from the synapse to integrated behavior. Special attention to the recent concepts of inhibition at the behavioral level and their implications for learning, emotion, and mental health.

Mr. Sterman (F, even years)

**M213. Multigene Families.** (Same as Biology M220.) Lecture, two hours; discussion, two hours. Prerequisites: comparative genetics and Biology 144 or equivalent and consent of instructor. Analysis of the molecular structure, developmental regulation, and evolution of multigene families. Topics include the hemoglobins, immunoglobulins, histones, ribosomal RNAs, satellite DNAs, and histocompatibility antigens. S/U or letter grading.

Mr. Campbell, Mr. Tobin (W)

**214. Data Acquisition in Behavioral Neurophysiology.** Lecture, two hours. Prerequisite: course 211. Neurophysiological techniques in behavioral studies; data acquisition systems and computer analysis of neurophysiological data.

Mr. Harper and the Staff (F, odd years)

**M224A-M224B. Structure and Chemistry of Connective Tissue (2 units each).** (Same as Oral Biology M224A-M224B.) Prerequisites: histology, biochemistry. A seminar course designed for graduate students in dentistry, medicine, or basic science. Fundamental information on the fine structure and chemical composition of bone, dentin, cementum, cartilage, and cells of connective tissue in general, as well as enamel, with emphasis on the biosynthesis of collagen, noncollagenous proteins and glycoproteins, and glycosaminoglycans (mucopolysaccharides). The possible roles of cellular and noncellular elements in the process of biological mineralization and correlation of biological processes to periodontal pathology. In Progress grading.

Mr. Weinstock and the Staff (F,W, alternate years)

**M225. Biology of Bone (2 units).** (Same as Oral Biology M214.) Lecture, two hours; discussion, one hour. Prerequisite: consent of instructor. Embryology of bone tissue; bone as an organ; growth and development of specific bones; biochemistry and physiology of bone; remodeling of bone; crystallography of hydroxyapatite; pathological calcifications; pathology of bone; mechanisms and lineage of calcification; clinical correlations.

Mr. Bernard (W)

**M226. Brainstem Control of Rhythmic Movements.** (Same as Kinesiology M243; lecture is the same as Oral Biology 207, which is two units only.) Lecture, two hours; discussion, two hours. Discussion of the central nervous system mechanisms which coordinate and control the contraction patterns of the muscles which are involved in behaviors such as suckling, chewing, swallowing, speech, respiration, and locomotion. Emphasis on the interaction among brainstem reflexes, pattern generators, and "voluntary" control centers.

Mr. Chandler, Mr. Goldberg

**M235. Gut and Brain Peptides (2 units).** (Same as Neuroscience M235 and Physiology M235.) Prerequisite: consent of instructor. Current knowledge of gut and brain peptides is presented by surveying their chemistry, anatomy, and physiology. Experimental approaches used to study biologically active peptides are discussed. In addition, current information about each of the major gut and brain peptides is reviewed. S/U or letter grading.

Mr. Brecha, Mr. Reeve, Ms. Tache (W)

**251. Problems in Developmental and Comparative Immunology (2 units).** Prerequisite: consent of instructor. Review of current literature emphasizing early development and evolution of immune competence.

Mr. Cooper (W)

**252. Seminar on Basic and Quantitated Neurophysiology (2 units).** Lecture, 90 minutes; discussion, 90 minutes. Prerequisite: consent of instructor. Lecture series on basic neurophysiology. Early lectures by invited specialists on their specific fields. Later lectures by each student on a topic chosen and prepared in collaboration with the instructor.

Mr. Segundo (Sp, odd years)

**253. Communication and Coding in Nervous Systems.** Lecture/discussion, two 90-minute sessions and one two-hour session. Prerequisite: consent of instructor. Presentation, discussion, and critique of efforts to quantify neuronal function where the essence of the mathematics is expressed in qualitative and physiologically meaningful terms (e.g., stability, neurons as analyzers of spike trains, identification of synaptic operators).

Mr. Segundo (Sp, even years)

**255A-255D. Seminars in Endocrinology (2 units each).** Prerequisite: consent of instructor.

Mr. Sawyer and the Staff (W,Sp)

**256. Seminar in Cell Structure and Function (2 units).** Lecture, one hour; discussion, one hour. Prerequisite: consent of instructor. Selected topics in cell biology emphasizing those areas which are of current interest. Includes an analysis of the various techniques being used to study the cell.

Ms. Dirksen and the Staff (W,Sp)

**258. Seminar in Neuroscience (2 units).** Prerequisites: basic neurology, course 209. Topics of current interest or ongoing research projects are presented, and both content and method of presentation are examined. May be repeated for credit.

Mr. Scheibel (F, odd years; W, even years)

**M260. Fundamental Concepts of Neuroendocrinology.** (Same as Neuroscience M260.) Lecture, two hours; discussion, two hours. Prerequisites: courses M206A-M206B and Biological Chemistry 101C, or consent of instructor. Basic concepts of neuroendocrine integration, including analysis of the current literature and research techniques.

Mr. Gorski (W, odd years)

**M261. Neuronal Circuit Analysis (2 units).** (Same as Neuroscience M261.) Lecture/discussion, three hours. Prerequisites: courses M206A-M206B or equivalent. The course is run in a seminar form with strong emphasis on specific reading assignments. It presents an integrated view of neuronal circuit analysis at an advanced level and examines the layout and performance of a variety of basic neuronal circuits serving different control functions.

Mr. Schlag (W)

**265. Evolution of Cancer (2 units).** Prerequisite: consent of instructor. Review of current literature emphasizing the appearance of tumors and neoplasms in representative invertebrates, fishes, amphibians, and reptiles. Theories of cancer development from the evolutionary viewpoint.

Mr. Cooper (W)

**390A-390B. The Peer Review System (2 units each).** Prerequisite: advancement to candidacy in integrative or systems biology or consent of instructor. Introduction to the peer review system for the evaluation of research proposals. After consideration of the grant review process, each student prepares an abbreviated grant application which is evaluated in a mock peer review session moderated by the faculty. In Progress grading.

Mr. Gorski (W,Sp, odd years)

**490. Communicating Scientific Information (2 units).** Prerequisite: graduate standing in anatomy. Student papers and lectures serve as the basis for group discussions of the art and science of effective written and oral communication of scientific information. May be repeated for credit. S/U grading. (W)

**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. The course is used to record enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. S/U grading.

**596. Directed Individual Study or Research (2 to 12 units).**

**597. Preparation for M.S. Comprehensive Examination or Ph.D. Qualifying Examination (2 to 12 units).**

**598. Thesis Research for M.S. Candidates (2 to 12 units).**

**599. Dissertation Research for Ph.D. Candidates (2 to 12 units).**

## Medical History Division

### Professors

Franklin D. Murphy, M.D., Sc.D.

Mary A.B. Brazier, Ph.D., *Emeritus, in Residence*

### Associate Professors

L.R.C. Agnew, M.D.

Robert G. Frank, Jr., Ph.D.

Ynez V. O'Neill, Ph.D., *in Residence*

### Adjunct Lecturer

Elizabeth R. Lomax, M.D., Ph.D.

## Upper Division Courses

**107A-107B. Historical Development of Medical Sciences.** Lecture, three hours. The major contributions of medicine and medical personalities from earliest times. **107A** deals with the contributions of medicine and medical personalities from earliest times through 1650; **107B** deals with the subject in the period from 1650 through the 19th century. Illustrated lectures, class discussion, and required readings from selected texts.

Mr. Agnew (Sp), Ms. O'Neill (W)

**M108A-M108B. History of Biological Sciences.** (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.

Mr. Frank (F,W)

## Graduate Courses

**240A-240B. History of Medical Sciences (2 units each).** Lecture, one hour. Survey of the development of scientific and medical thought from ancient times to the present. (F,W)

**241A-241B. History of Clinical Sciences (2 units each).** Lecture, one hour. Survey of the development of the clinical specialties and comparison of medical practice in Western civilization with that developed in other parts of the world. Mr. Agnew (F,W)

**242. History of Pathology (1 unit).** Survey of the history of pathology and related sciences from antiquity to the 20th century, tracing the development of pathological theory, practice, organization, and education and comparing them to current practice.

Mr. Agnew (F)

**243. History of Surgery (1 unit).** Survey of the history of surgery and related sciences from antiquity to the 20th century, tracing the development of surgical theory, practice, organization, and education and comparing them to current practice.

Mr. Agnew (W)

**244. History of American Medicine (1 unit).** Survey of the history of medicine in the United States from the Colonial period to the present.

Mr. Agnew (Sp)

**246. History of Neurophysiology: Its Impact on Psychology and Medicine (2 to 4 units).** Lecture, one hour; seminar, two hours. The course covers the development of experimental neurophysiology from its scientific roots in the 17th century through the recognition of the excitability of the nervous system, to the use of this characteristic in revealing the functions of the central nervous system. The seminars complement the lectures mainly through discussion of the interaction of neurophysiological ideas with contemporary philosophy and medicine. The lectures may be taken independently.

Ms. Brazier, Ms. Lomax, Ms. O'Neill (Sp)

**250. History of Medical Psychology (2 units).** Lecture, one hour. An examination of the themes underlying modern mental health theories. Beginning with a review of contemporary thinking, the lectures focus on the various factors shaping present concepts of mental disorders and provide a framework for the understanding of current issues.

Ms. Lomax, Ms. O'Neill (W)

**596. Directed Individual Studies in Medical History (2 to 12 units).** Investigation of subjects in medical history selected by students with the advice and direction of the instructor. Individual reports and conferences. (F,W,Sp)

## Anesthesiology

56-125 Center for Health Sciences,  
825-4123

### Professors

Gerald Allen, M.D.

Robert O. Bauer, M.D.

Werner E. Flacke, M.D., *in Residence*

Ronald L. Katz, M.D., *Chair*

Lawrence Kruger, Ph.D.

Ching-Muh Lee, M.D.

Richard Patterson, M.D.

Eduardo Rubinstein, M.D., Ph.D., *in Residence*

Stuart F. Sullivan, M.D., *Executive Vice Chair*

Leonard F. Walts, M.D.

John B. Dillon, M.D., *Emeritus*

### Associate Professors

Theresa Ferrer-Brechner, M.D.

Joan W. Flacke, M.D.

Jordan D. Miller, M.D.

Robert C. Reynolds, M.D., Ph.D.

Susan A. Ward, D.Phil.

### Assistant Professors

Kenneth A. Conklin, M.D., Ph.D.

Nick Durant, Ph.D., *in Residence*

Rosa Marie Durazo, M.D.

Patricia Kapur, M.D.

Robert D. Kaufman, M.D.

Marie Kuffner, M.D.

Layne Rasmussen, M.D.

John Reeves, Ph.D., *in Residence*

John Ritter, M.D.

Naomi Saucier, M.D., *in Residence*

Stanley Stead, M.D.

Denham Ward, M.D., Ph.D.

Thomas Webb, M.D.

### Adjunct Professors

Edward Deland, Ph.D.

Atsuo Fukunaga, M.D.

**Adjunct Associate Professors**

George P. Herr, M.D.  
 Kumiko Iwamoto, M.D.  
 Leah E. Katz, CRNA, Ed.D.  
 Richard Kroening, M.D.  
 Maurice Lippman, M.D.  
 Young-Zin Sohn, M.D.  
 Elaine Yang, M.D.

**Adjunct and Clinical Assistant Professors**

Jill L'Armand, *Adjunct*  
 Emil G. Bishay, M.D., *Adjunct*  
 Byron Bloor, Ph.D., *Adjunct*  
 Joseph Cadranet, M.D., *Clinical*  
 Sandy Frye, CRNA, M.S., *Adjunct*  
 Arnold Lee, *Adjunct*  
 Suha Murad, M.D., *Adjunct*  
 Evelyn Norel, M.D., *Adjunct*  
 Con Gia Pham, M.D., *Adjunct*  
 Stanley Schneider, M.D., *Clinical*  
 Bruce Skolnick, Ph.D., *Adjunct*  
 Bang Tran, M.D., *Adjunct*

**Clinical Instructors**

John DeAngelis, M.D.  
 Ronald Wender, M.D.

**Scope and Objectives**

The Department of Anesthesiology in the School of Medicine offers a program leading to the M.S. degree in Nurse Anesthesia. This program prepares qualified Registered Nurses in the specialty of anesthesiology and qualifies the graduate to sit for the certification examination given by the Council on Certification of Nurse Anesthetists. The graduate attains 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 and the teaching of nurse anesthesiology with the opportunity for participating in research in the area.

**Master of Science in Nurse Anesthesia****Admission**

- (1) Graduation from an accredited nursing program satisfactory to the program and to the UCLA Graduate Division. You may be required to enroll in certain additional undergraduate courses prior to final consideration by the program.
- (2) Licensure as a Registered Nurse prior to entry into clinical coursework. Evidence of status as a Registered Nurse in the State of California is mandatory.
- (3) Completion of a minimum of one year of experience as a graduate nurse in an acute care area of nursing, preferably an intensive care unit.
- (4) Professional and academic competence attested through three letters of recommendation.

(5) Graduate Record Examination Aptitude Test results submitted to the program.

(6) Successful completion of the following undergraduate-level courses: (a) inorganic chemistry, organic chemistry, and biochemistry, (b) introductory physics, (c) biology, (d) anatomy, (e) physiology, (f) English, (g) psychology, (h) statistics, and (i) a course in methods of research (highly recommended).

(7) A scholarship record satisfactory to the Graduate Division and the Nurse Anesthesia Program. Transcripts must be sent to both.

(8) Interview with the program director or designee and with members of the final selection committee, and observation in the clinical practicum.

Approximately five to six students will be selected for admission in Fall Quarter by the final selection committee which meets annually in February. Information regarding the program may be obtained by writing to the Department of Anesthesiology, UCLA School of Medicine, Los Angeles, CA 90024. All applicants must apply to both the department and the Graduate Division. Separate applications are needed.

**Foreign Language Requirement**

There is no foreign language requirement for the M.S. degree.

**Course Requirements**

Total courses required for the degree: 13 $\frac{1}{4}$ ; all must be graduate-level courses.

**Required:** Anesthesiology 210A, 210B, 210C, 215A, 215B, 220A, 220B, 220C, 221, M222, 223, 225A-225B, 290, 400A through 400G, 401, 402, 598A, 598B.

Completion of courses 597 or 598A and 598B is required. Course 598A may be repeated twice, but only two of the courses may be applied toward the degree. Letter grading may be utilized in 500-series courses.

**Thesis Plan**

If you elect this option, your thesis committee is established during the second year of the program. The thesis proposal is written and approved during the Winter or Spring Quarter of your second year. You must take a written comprehensive examination for course completion.

**Comprehensive Examination Plan**

Students electing this option will have demonstrated didactic and clinical competence in the field and will have completed selected education courses.

If you elect the oral examination option, you must, in addition to the required curriculum in anesthesia, successfully complete designated courses in curriculum, testing and evaluation, and instruction to meet the accreditation requirements for teachers of anesthesia. The oral examination is general in scope and may

include information from all aspects of the curriculum. A written comprehensive examination is also required for course completion. Examinations are offered quarterly.

**Other Requirements**

- (1) You must complete all didactic and clinical work to earn the Master of Science degree.
- (2) The program does not discriminate on any basis unless a handicap is determined by the selection committee to preclude the safe clinical practice of anesthesia.
- (3) You must complete a minimum of 550 cases as the primary anesthetist.
- (4) You must meet the requirements for application to sit for the Certification Examination of the AANA for program completion.

**Graduate Courses**

**210A. Chemistry and Physics of Nurse Anesthesia I (2 units).** Lecture, two hours; discussion, one hour. A study of the principles of chemistry and physics as applied specifically to the practice of anesthesia. Mr. Katz

**210B. Chemistry and Physics of Nurse Anesthesia II (2 units).** Lecture, two hours; discussion, one hour. Prerequisite: course 210A. A continuation of the study of the principles of chemistry and physics as applied specifically to the practice of anesthesia. Mr. Katz

**210C. Chemistry and Physics of Nurse Anesthesia III (2 units).** Lecture, two hours; discussion, one hour. Prerequisite: course 210B. A continuation of the 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. Mr. Katz

**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. A study of uptake and distribution, mechanism of action, fate, and toxicology as related to anesthetic agents. Mr. Flacke and the Staff

**215B. Pharmacology of Nurse Anesthesia II.** Lecture/discussion. A study of the pharmacology of adjunct drugs influencing anesthesia administration, including their uptake and distribution, mechanism of action, fate, biotransformation, and toxicology. Mr. Flacke and the Staff

**220A. Respiratory Anatomy and Physiology for Nurse Anesthetists I (2 units).** Lecture, two hours; discussion, one hour. A study of the structure and function of the respiratory system, with emphasis on anatomy and physiology at the cellular level. Ms. Ward

**220B. Respiratory Anatomy and Physiology for Nurse Anesthetists II (2 units).** Lecture, two hours; discussion, one hour. A continuation of respiratory anatomy and physiology, with emphasis on the respiratory system as related to anesthesia administration and relevant problems. Ms. Ward

**220C. Respiratory Anatomy and Physiology for Nurse Anesthetists III (2 units).** Lecture, two hours; discussion, one hour. A continuation of the study of respiratory anatomy and physiology as related to anesthesia administration and relevant problems. Ms. Ward

**221. Cardiovascular Anatomy and Physiology for Nurse Anesthetists.** Lecture, four hours; discussion, one hour. An integrated study of the anatomy and physiology of the C-V system as related to the management of anesthesia administration. Ms. Ward

**M222. Biological Control Systems.** (Same as System Science M222F.) Prerequisite: System Science 122A or equivalent. Introduction to the application of control theory to the modeling and analysis of biological control systems, such as the respiratory system, cardiovascular system, and neuromuscular system. Emphasis on solving problems of current interest in biomedicine. Mr. Wiberg

**223. Anatomy and Physiology of the Endocrine and Excretory Systems for Nurse Anesthetists.** Lecture, four hours; discussion, one to two hours. An integrated study of the endocrine and excretory systems as related to the management of anesthesia administration. Mr. Skolnick

**225A-225B. Anatomy and Physiology of the Nervous System for Nurse Anesthetists (2 units each).** (Formerly numbered 225.) Lecture, two hours; discussion, one to two hours. An integrated study of the anatomy and physiology of the nervous system as related to the management of anesthesia administration. Mr. Katz, Mr. Rubinstein, Mr. Skolnick

**M268. Behavioral Management of Pain Problems (2 units).** (Same as Psychiatry M268.) Prerequisite: consent of instructor. The course reviews current knowledge and skills involved in the behavioral assessment and management of acute and chronic pain problems. The behavioral perspective is integrated with related physiological and medical considerations. Mr. McCreary, Mr. Reeves

**290. Anesthesia Seminar for Nurse Anesthetists (2 units).** Discussion, two to three hours. Discussion of special problems in anesthesia of interest to the student. Ms. Ward and the Staff

**400A. Basic Clinical Anesthesia for Nurse Anesthetists I (2 units).** Lecture, three hours; laboratory, thirty hours. Prerequisite: course 402. Correlation of techniques of anesthesia administration with basic science knowledge as applied in the clinical area with supervised practice. S/U grading. Ms. Frye and the Staff

**400B. Basic Clinical Anesthesia for Nurse Anesthetists II (2 units).** Lecture, two hours; laboratory, thirty hours. Prerequisite: course 400A. A continuation of the practice of techniques of anesthesia administration as applied in the clinical area with supervised practice. S/U grading. Ms. Frye and the Staff

**400C. Basic Clinical Anesthesia for Nurse Anesthetists III (2 units).** Lecture, two hours; laboratory, thirty hours. Prerequisite: course 400B. A continuation of techniques of anesthesia administration as applied in the clinical area with supervised practice. S/U grading. Ms. Frye and the Staff

**400D. Clinical Anesthesia for Nurse Anesthetists IV (2 units).** Lecture, two hours; laboratory, thirty hours. Prerequisite: course 400C. A practice of refinements of anesthesia techniques, with emphasis on specialized areas of anesthesia administration in supervised practice. S/U grading. Ms. Frye and the Staff

**400E. Clinical Anesthesia for Nurse Anesthetists V (2 units).** Lecture, two hours; laboratory, thirty hours. Prerequisite: course 400D. A practice of refinements of anesthesia techniques, with emphasis on specialized areas of anesthesia administration in supervised practice. S/U grading. Ms. Frye and the Staff

**400F. Clinical Anesthesia for Nurse Anesthetists VI (2 units).** Lecture, two hours; laboratory, thirty hours. Prerequisite: course 400E. A practice of refinements of anesthesia techniques, with emphasis on specialized areas of anesthesia administration in supervised practice. S/U grading. Ms. Frye and the Staff

**400G. Clinical Anesthesia for Nurse Anesthetists VII (2 units).** Lecture, two hours; laboratory, thirty hours. Prerequisite: course 400F. A practice of refinements of anesthesia techniques, with emphasis on specialized areas of anesthesia administration in supervised practice. S/U grading. Ms. Frye and the Staff

**401. Orientation to Nurse Anesthesia (2 units).** Lecture, two hours; discussion, 30 minutes to one hour. Orientation to history, ethics, and legal aspects of nurse anesthesia. Psychology related to patient undergoing surgery and anesthesia. Ms. Frye, Ms. Katz

**402. Fundamentals of Anesthesia Practice for Nurse Anesthetists (6 units).** Lecture, six hours; discussion, one to two hours. Introduction to basic principles of anesthesia administration, including pre-anesthetic assessment, physical examination, techniques and procedures, and anesthesia for specialized techniques and surgery. Ms. Frye and the Staff

**597. Preparation for M.S. Oral Qualifying Examination (2 units).** Prerequisite: consent of instructor. Opportunity to pursue comprehensive study in anesthesiology and related areas on an individual basis, with the opportunity for discussion of the material with the instructor. Mr. Katz, Ms. Ward

**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 is required. This may be elected instead of the oral comprehensive examination for completion of the M.S. program. Ms. Ward

**598B. Research in Anesthesia II (2 units).** Prerequisite: course 598B. Opportunity to pursue anesthesia research outlets for thesis preparation. Independent research of quality suitable for publication is required. This may be elected instead of the oral comprehensive examination for completion of the M.S. program. May be repeated twice for credit. Ms. Ward

## Biological Chemistry

33-257 Center for Health Sciences,  
825-6545

### Professors

Roslyn B. Alfin-Slater, Ph.D.  
Robert J. DeLange, Ph.D.  
John Edmond, Ph.D.  
Peter Edwards, Ph.D., *in Residence*  
Samuel Eiduson, Ph.D., *in Residence*  
Armand J. Fulco, Ph.D.  
Dohn G. Glitz, Ph.D., *Vice Chair*  
Isaac M. Harary, Ph.D.  
Harvey R. Herschman, Ph.D.  
Bruce D. Howard, M.D.  
Sidney Roberts, Ph.D.  
Larry J. Shapiro, M.D., *in Residence*  
David S. Sigman, Ph.D.  
Marian E. Swendseid, Ph.D.  
William T. Wickner, M.D.  
Irving Zabin, Ph.D.  
Robert M. Fink, Ph.D., *Emeritus*  
Ralph W. McKee, Ph.D., *Emeritus*  
James F. Mead, Ph.D., *Emeritus*  
Joseph F. Nyc, Ph.D., *Emeritus*  
John G. Pierce, Ph.D., *Emeritus*  
George J. Popjak, M.D., D.Sc., *Emeritus*  
Emil L. Smith, Ph.D., *Emeritus*  
Stephen Zamenhof, Ph.D., *Emeritus*

### Associate Professors

James C. Paulson, Ph.D.  
Leonard H. Rome, Ph.D.  
John E. Snoke, Ph.D.  
Patrice J. Zamenhof, Ph.D.

### Assistant Professors

Kathryn L. Calame, Ph.D.  
Kevin McEntee, Ph.D.

## Scope and Objectives

Modern biochemistry is both intellectually and methodologically a wide-ranging and expanding field of science; it has grown well beyond its initial definition as the chemistry of living things. People who call themselves biochemists work in areas as diverse as medical research, nutrition, pharmacology, crystallography, virology, genetic manipulation, and cellular or molecular biology, as well as the "traditional" studies of metabolism, enzymology, and molecular structure.

Biological chemistry at UCLA attempts to provide students with the necessary background for continued growth in this fast-changing science. As a part of the School of Medicine, the department is involved in the basic education of students who will be practicing physicians, as well as medical research specialists. But through its graduate program and its interactions with other graduate departments, it deals with students whose primary interests are in biochemistry and other related sciences.

The department emphasizes biochemical research leading to the Ph.D. degree; the faculty represents a variety of research areas, and graduates find employment in a multiplicity of research or research-related fields, as well as in teaching. The department also offers limited opportunities for research or nonresearch study toward the M.S. degree.

## Requirements for Graduate Degrees

### Admission

In addition to the University's minimum requirements, which include a bachelor's degree (preferably in chemistry or a biological science), students should normally have completed the following: general chemistry, quantitative chemistry, organic chemistry (with laboratory), physical chemistry (with laboratory), general physics, mathematics through calculus, and general biology (or bacteriology, botany, zoology, biochemistry, or molecular biology). More advanced courses in these areas are also recommended where possible.

You are expected to take the Graduate Record Examination (GRE) Aptitude Test, preferably in October or before, but no later than December of the year prior to expected admission. It is strongly recommended that you also take the GRE Advanced Test in either Biology or Chemistry. In exceptional circumstances, the GRE test requirements may be waived by the departmental graduate admissions committee. If your native language is other than English, you are expected to take an appropriate

examination which tests proficiency in English (e.g., TOEFL) prior to the time of application to this department.

There is no separate application form required for admission to the department, but at least three letters of recommendation are required. Have them sent directly to the Graduate Information Office at the address below.

Departmental brochures and information may be obtained by writing to the Graduate Information Office, Department of Biological Chemistry, UCLA School of Medicine, Los Angeles, CA 90024.

### Course Requirements

All graduate students must take the three core courses (Biological Chemistry M253, M255, and M267) unless excused by the graduate adviser. (See additional course requirements under each degree program.)

### Written Qualifying Examination

After completing the core course requirements (see above), you must take the departmental written examination (usually given in July; may be given in January or at other times if there is sufficient need). This examination is formulated by the departmental graduate student guidance committee from questions submitted by the various faculty members, who also evaluate your answers to these questions. The committee evaluates your overall performance on the examination and makes a recommendation to the departmental faculty of one of the following: (1) pass at the Ph.D. level of achievement; (2) pass at the master's level of achievement; (3) fail.

The departmental faculty can approve or change the recommended action and can authorize a reexamination in case of failure (consent is rarely given to take the test a third time). The faculty may also recommend or require additional coursework in specific areas prior to taking the examination a second time, or before taking final action on the results of the written examination.

### Master of Science Degree

#### Course Requirements

In addition to the core course requirements described above for all students, 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 your program.

All three courses are graded S/U and may be taken as often as necessary (2 to 12 units each time).

### Comprehensive Examination Plan

In general, the department prefers students to enter directly into the Ph.D. program, but if you enter the master's program, the comprehensive examination plan is preferred. Only in exceptional situations will a student be approved for the thesis plan. In either plan you must pass the departmental written examination at the master's level of achievement (see above). 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 will help you plan the thesis research, determine the acceptability of the thesis, administer a final examination (if deemed appropriate), and recommend 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.

### Ph.D. Degree

#### Admission

Students are not required to obtain a master's degree prior to admission into the doctoral program and do not usually obtain a master's degree as part of the normal progress toward the Ph.D.

#### Course Requirements

In addition to the general course requirements listed above, students in the Ph.D. program are expected to complete:

- (1) Biological Chemistry 220A-220B-220C (each quarter during the first year). You must arrange for at least two rotations in the laboratories of different faculty members to help in the selection of a research adviser.
- (2) Three or four elective courses (total of 10 to 12 units) in addition to the core courses described above. One of the courses must be a scientific language/instrumentation course (e.g., computer language, statistics, electron microscopy). Elective courses may be selected from those offered by any department.
- (3) Courses 596, 597, and/or 599 during quarters in which research (596, 599) or study for written or oral examinations (597) is part of your program. Course 599 is for students who have passed their oral examinations; course 596 is for those who have not.

### Teaching Experience

All students in the doctoral program are expected to participate in teaching activities by

assisting the faculty in a laboratory for medical or dental students (usually one day a week for one quarter during the second year) and by assisting in the grading of examinations (usually one to two times per quarter starting in the second year).

### Qualifying Examinations

If you have passed the departmental written examination at the Ph.D. level of achievement (see above), you should consult with the department Chair, who is responsible for nominating faculty members to serve on your doctoral committee.

The University Oral Qualifying Examination, which must be passed before you can be advanced to candidacy, consists of the presentation and defense of a research proposal to the doctoral committee. This proposal should not be in the area of your dissertation research. The doctoral committee determines whether you pass the examination and whether reexamination will be allowed in case of failure. The examination may be repeated only once. It is expected that students will complete the University Oral Qualifying Examination by the beginning of the third year of graduate work.

### Final Oral Examination

The doctoral committee may elect to waive the final oral examination.

### Cooperative Degree Program

Students may apply for the M.D./Ph.D. program by making simultaneous applications for graduate standing in this 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.

### Upper Division Courses

**101A-101B-101C. Biological Chemistry.** Lecture, three hours. Prerequisite: organic chemistry. Required in the medical curriculum; consent of instructor is required for nonmedical students.

**101E. Biological Chemistry Laboratory.** Laboratory, seven hours. Required in the medical curriculum; consent of instructor is required for nonmedical students. Experiments illustrating some of the procedures employed in clinical chemistry, enzymology, and metabolic studies.

**102A-102B. Biological Chemistry Lecture (Dental Students).** Lecture, three hours. Prerequisites: courses necessary for admission to dental school. Required in the dental curriculum; consent of instructor is required for nondental students. The biochemical properties and structures of living systems are considered, with special emphasis on mineral metabolism and nutrition.

**102C. Biological Chemistry Seminar (Dental Students) (1 unit).** Seminar, four hours (five weeks). Required in the dental curriculum; consent of instructor is required for nondental students. The seminars, which are given by the students to small discussion groups, involve presentation of material from current research dealing with biochemical studies.

Mr. Snoke and the Staff

## Graduate Courses

**201A-201B. Biological Chemistry.** Lecture, three hours. Prerequisites: organic chemistry, an undergraduate course in biochemistry other than a beginning survey course, consent of instructor. A graduate-level course in fundamentals of biochemistry, with emphasis on mammalian biochemistry. Structure, function, and metabolism of major cell constituents.

**220A-220B-220C. Research Laboratory Rotations (2 to 8 units each).** Lecture, one hour; laboratory, six hours. Prerequisite: consent of instructor. Students arrange apprenticeships in the laboratories of one or more departmental faculty members and engage in a research project under close faculty direction. The program allows students to acquire in-depth laboratory experience in specific research areas and facilitates an informed decision on their part in the selection of a thesis/research adviser.

Mr. Fulco and the Staff (F, 220A; W, 220B; Sp, 220C)

**221. Functional Neurochemistry.** Lecture or recitation, three hours. Prerequisites: courses 101A-101B-101C or equivalent. Chemistry and metabolism of neural tissue, with particular relationship to specialized function in the central nervous system.

Mr. Roberts and the Staff

**222. Biochemistry of the Synapse (2 units).** Prerequisite: course 221. Detailed analysis of the research literature dealing with biochemistry of the synapse. Metabolism, storage, and release of transmitter; transmitter receptors and functions; neuronal plasticity.

Mr. Howard

**223. Current Topics in Neurochemistry (2 units).** Prerequisite: course 221. Detailed analysis of a circumscribed area of neurochemistry of current interest. Topics may include metabolic diseases affecting brain function, developmental neurochemistry, role of cyclic nucleotides in neural activity, biochemical differentiation of the nervous system, research methods in neurochemistry, brain specific macromolecules.

**M237. Steroid Hormones (2 units).** (Same as Biology M237.) Highly recommended prerequisites: prior courses in biochemistry and cell biology. Detailed examination of the mode of action of steroid hormones on both *in vivo* and *in vitro* systems. Topics include steroid uptake, receptor purification and activation, and nuclear events, among others.

Mr. O'Connor

**M248. Molecular Genetics.** (Formerly numbered 248.) (Same as Biology M248.) Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. Basic concepts in modern genetics are presented, drawing examples from both eukaryotic and prokaryotic systems. Emphasis on the use of genetic techniques for addressing fundamental questions in biochemistry and molecular biology. Topics include mutagenesis, mutant selection, recombination, genetic mapping, complementation, transposable elements, gene organization, genetic regulation, and molecular evolution.

Ms. Calame, Mr. McEntee, Mr. Miller, Mr. Shapiro (W)

**M253. Macromolecular Structure (6 units).** (Same as Chemistry M253.) Lecture or recitation, five hours. Prerequisites: courses 101A-101B or 201A-201B or Chemistry 110A, 156, 157A, and 157B, or equivalent, or consent of instructor. Chemical and physical properties of proteins, nucleic acids, and other macromolecular complexes, with emphasis on theory and methodology; correlation of structure and biological properties; chemical synthesis and properties of polypeptides and polynucleotides.

**M255. Enzymes, Metabolism, and Regulation (6 units).** (Same as Chemistry M255.) Lecture or recitation, five hours. Prerequisites: courses 101A-101B or 201A-201B or Chemistry 110A, 156, 157A, and 157B, or equivalent. Recommended: course M253. Thermodynamic and kinetic aspects of metabolism; regulatory properties of enzymes; metabolic regulation; consideration of comparative aspects of metabolism in relation to physiological function; enzymic mechanisms and methods for their study.

**M257. Physical Chemistry of Biological Macromolecules (2 units).** (Same as Chemistry M257.) Prerequisite: Chemistry 25 or 110A or consent of instructor. Theory of hydrodynamic, thermodynamic, optical, and X-ray techniques used to study the structure and function of biological macromolecules.

Mr. Schumaker (F)

**259. Biochemical Endocrinology (2 units).** Prerequisites: courses 101A-101B or 201A-201B or Chemistry 157A and 157B, or equivalent. A lecture course emphasizing aspects of the structures of peptide and steroid hormones which are important for their biological actions, the interaction of these hormones with cell receptors, the molecular mode of action of peptide and steroid hormones, and the role of second and third messengers in hormone action.

Mr. Roberts (W, alternate years)

**M261. Advanced Chemistry and Biochemistry of Lipids.** (Same as Chemistry M261.) Lecture, three hours; discussion, one hour. Prerequisites: courses 101A-101B or 201A-201B, Chemistry 157A and 157B, or equivalent. Comprehensive treatment of lipid nutrition and metabolic-nutrient interactions.

Ms. Alfin-Slater, Mr. Mead, Mr. Popjak

**M264A-M264B-M264C. Molecular Basis of Atherosclerosis: Selected Topics (2 units each).** (Formerly numbered M264.) (Same as Chemistry M264A-M264B-M264C.) Prerequisites: course M261 or equivalent and consent of instructor. The courses cover a variety of topics concerning the biochemistry, morphology, and physiology of atherosclerosis. Emphasis on the chemistry of lipoproteins and the role of plasma lipoproteins in the regulation of tissue lipid metabolism and the development of atherosclerosis. Each course may be taken independently for credit.

**265. Seminar in the Biochemistry of Nucleic Acids (2 units).** Lecture or recitation, one hour. Prerequisite: course M253 or equivalent. Biochemistry and chemistry of nucleic acids and nucleotides.

Mr. Glitz

**266A-266B-266C. Seminar in the Biochemistry of Differentiation (2 units each).** Lecture or recitation, one hour. Prerequisite: consent of instructor. A review of the current literature in the areas of specific expression of function and control of enzyme synthesis; metabolism in developing systems; and the control of gene expression pertaining to the biochemistry of development.

Mr. Harary, Mr. Herschman

**M267. Macromolecular Metabolism and Subcellular Organization (6 units).** (Same as Chemistry M267.) Lecture or recitation, five hours. Prerequisites: courses 101A-101B or 201A-201B or Chemistry 157A and 157B, or equivalent. Recommended: course M253. Metabolism of nucleic acids and proteins; biosynthesis of complex lipids and polysaccharides; structure and properties of cellular organelles.

**M269. Developmental Biochemistry (2 units).** (Same as Chemistry M269.) Prerequisite: course M267 or consent of instructor. The course deals with the biochemical aspects of development, specific tissue and cell function, and differential gene expression. The biochemistry of cell division, macromolecular synthesis, chromatin function in gene expression, cell-cell interactions, membrane organization, and growth are studied as they contribute to such topics as hormone induction, morphogenesis, and viral transformation. Emphasis on the use of differentiating *in vivo* systems and cell culture as models.

Mr. Harary, Mr. Herschman

**M298. Seminar in Current Topics in Molecular Biology (2 units).** (Same as Biology M298, Chemistry M298, Microbiology M298, Microbiology and Immunology M298, and Molecular Biology M298.) Discussion, one hour. Prerequisite: consent of instructor and graduate adviser of interdepartmental Molecular Biology Ph.D. committee. 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).** Laboratory, to be arranged. Prerequisite: consent of graduate adviser. S/U grading.

**597. Preparation for Examinations (2 to 4 units).** Prerequisite: consent of graduate adviser. Individual study for Ph.D. qualifying examination 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.

## Biomathematics

AV-617 Center for Health Sciences,  
825-5800

### Professors

Abdelmonem A. Afifi, Ph.D.  
Virginia A. Clark, Ph.D.  
Wilfrid J. Dixon, Ph.D., *Vice Chair*  
Robert M. Elashoff, Ph.D.  
Donald J. Jenden, M.D.  
Robert I. Jennrich, Ph.D.  
Kenneth L. Lange, Ph.D.  
Frank J. Massey, Ph.D.  
Carol M. Newton, M.D., Ph.D., *Chair*  
Michael E. Phelps, Ph.D.  
M. Anne Spence, Ph.D., *in Residence*

### Associate Professors

Henry Huang, D.Sc., *in Residence*  
Roderick J.A. Little, Ph.D.

### Assistant Professors

Susan E. Hodge, D.Sc., *in Residence*  
Edward Korn, Ph.D., *in Residence*  
Elliot M. Landaw, M.D., Ph.D.

### Adjunct Professors

Edward C. DeLand, Ph.D.  
Janet E. Elashoff, Ph.D.  
Arthur Peskoff, Ph.D.

### Adjunct Assistant Professors

Eli Engel, M.D., Ph.D.  
David Greenberg, 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 human genetics, 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 com-



puting, 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.

## Requirements for Graduate Degrees

### 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 Aptitude and Advanced Tests of the Graduate Record Examination (GRE) should be taken. At least three letters of recommendation are required from faculty competent to evaluate your 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 application forms, you 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 the Chair, Graduate Admissions Committee, Department of Biomathematics, UCLA School of Medicine, Los Angeles, CA 90024.

You are admitted to either program after you have achieved admission to the Graduate Division and have been approved by the departmental graduate admissions committee.

## Master of Science Degree

### Course Requirements

In fulfilling the University's minimum requirement of nine courses, master's candidates must complete at least five graduate-level courses in biomathematics, of which Biomathematics 201, 202, and 203 are required.

No more than two 596 courses may be applied toward the required nine courses, and none may be applied toward the graduate course requirement.

### Thesis Plan

You generally will be 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 your plans for the thesis.

### 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 advisory committee, will cover material presented in your coursework. This will usually be the written comprehensive examination for the doctoral program given during the summer, but in exceptional cases a special committee and written examination will be provided.

## Ph.D. Degree

### Major Fields or Subdisciplines

Each student will 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, neurosciences, pharmacology, and physiology. Others may be added in response to students' requests.

### Course Requirements

The following courses are required:

*Biomathematics:* 201, 202, 203, 204, and eight units from 205, 206, M207, 208, 209.

*Mathematics:* Five graduate courses from an approved list, with two substitutions possible if especially appropriate to your research field. (Consent may be given by the curriculum committee at the time of admission to the program to count prior graduate courses for full or partial completion of this requirement.)

*Biology:* Courses required for the field of major biological emphasis.

*Independent Research:* Each student must take at least four units of Biomathematics 596 with a member of the Biomathematics Department each year prior to taking the written comprehensive examination. As you progress, there will be 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, you should have strength in 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 (see offerings in the School of Public Health).

*Computer Methods:* You must be a facile programmer and acquainted with numerical methods needed for your area of research. The numerical analysis sequence in the Department of Mathematics and computing courses in biomathematics are 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.

### Teaching Experience

One teaching preceptorship (Biomathematics 596) is required. You participate fully in the planning and delivery of one course in the Biomathematics Department. The emphasis is on your training in all aspects of preparing for and offering a course; this is not a service-oriented teaching assistantship.

With consent of the advisory committee, a student who does not plan to pursue an academic teaching career may, for one quarter, participate at the level of one 596 course in the individual-instruction activities of a member of the department faculty (e.g., informal instruction of biomedical scientific collaborators, planning and guiding individual reading programs, developing and administering term projects in research).

### Qualifying Examinations

In the summer, the department offers a written comprehensive examination to test your 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 qualifying examination in the field of major biological emphasis usually will be the regular comprehensive examination for doctoral students in that field and is taken prior to the examination that advances them to candidacy. Students entering with a Ph.D. in a biological field will be exempt from the above requirements. Students with an M.D. will be exempt from the required coursework; exemption from the examination may be granted by joint action of the curriculum and advisory committees in consultation with advisers from the specialty area.

The University Oral Qualifying Examination, administered by the doctoral committee appointed by the Dean of the Graduate Division, will critically probe the quality, scope, and feasibility of your proposed dissertation work. It will also explore the integration and strength of

biomathematical, mathematical, and biological expertise in your intended area of research. You advance to candidacy after passing this examination.

## Final Oral Examination

A final oral examination is required of all candidates and is a defense of the dissertation, administered by the doctoral committee.

## Upper Division Courses

**110. Elements of Biomathematics.** Prerequisite: calculus. Analysis of deterministic models, including some general approaches to the study of homeostasis. Conditions under which deterministic and probabilistic descriptions of biological phenomena are appropriate. Both approaches are applied to selected examples in epidemiology and enzyme kinetics.

Mr. Engel (F)

**M153. Introduction to Computational Statistics.** (Same as Mathematics M153.) Prerequisite: Mathematics 150C or 152B or equivalent. Statistical analysis of data by means of package programs. Regression, analysis of variance, discriminant analysis, and analysis of categorical data. Emphasis on understanding the connection between statistical theory, numerical results, and analysis of real data.

Mr. Jennrich (Sp)

**CM156. Human Genetics.** (Formerly numbered M134.) (Same as Biology CM156.) Lecture, three hours; discussion, one hour. Prerequisites: Biology 8, Chemistry 25. The application of genetic principles in human populations, with emphasis on cytogenetics, biochemical genetics, population genetics, and family studies. Lectures and readings in the literature focus on current questions in the fields of medical and human genetics and the methodologies appropriate to answer such questions. Concurrently scheduled with course CM256.

Mr. Merriam, Ms. Spence (W)

**170A-170B. Selected Biomathematical Topics for Researchers in Medicine and Biology.** (Formerly numbered 170A-170B-170C.) Lecture, four hours; discussion, 90 minutes. Prerequisite for course 170B: elementary calculus. Basic techniques for examination of data, planning of experiments, comparison of theory and experiment. Commonly used models (e.g., compartment, transport) are developed and used to illustrate the latter. Techniques include use of computer.

(F,W)

**171A-171B. Selected Topics for Dental Researchers (2 units each).** Instruction in critical and efficient reading of the dental literature, experimental designs, analysis of data using BMDP programs, and some basic modeling techniques. Review of modern biomathematical techniques in craniofacial research and other areas of interest to dentistry students. In Progress grading.

(F,W)

**172. Design, Conduct, and Analysis of Clinical Investigations (2 units).** Lecture, two hours (five weeks only); discussion, two hours (five weeks only). Topics include steps in bringing a possible therapy to clinical use; design of studies in animals to assess antitumor response; randomization, historical controls, p-values, size of study, stratification, and points; ethics of human experimentation; informed consent; three phases of human studies; indications for various types of controls, prognostic factors, survivorship studies, design of prognostic studies; organization of a clinical trial — administration, comparability, protocols, nursing and clinical standards, data collection and management. P/NP grading.

Mr. Elashoff (Sp)

**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 the student in depth with mathematical models and computer applications in biology. Must be taken for at least two quarters and for a total of at least eight units. A thesis is required.

Ms. Spence (F,W,Sp)

**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 appropriate training of students.

(F,W,Sp)

## Graduate Courses

**200. Research Frontiers in Biomathematics (2 units).** Prerequisite: consent of instructor. A series of presentations by the faculty on research frontiers in biomathematics.

(F)

**201. Deterministic Models in Biology.** Prerequisite: knowledge of linear algebra and differential equations. The conditions under which deterministic approaches can be employed are examined, as are conditions where they may be expected to fail. Topics include compartmental analysis, enzyme kinetics, physiological control systems, and cellular/animal population models.

Ms. Newton and the Staff (F)

**202. Fourier Analysis in Biology.** Prerequisite: knowledge of calculus, linear algebra, and probability. Introduction to the theory of Fourier transforms and Fourier series from the 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 the fast Fourier transform.

Mr. Lange (Sp)

**203. Stochastic Models in Biology.** Prerequisite: Mathematics 150A or equivalent experience in probability. The mathematical description of biological relationships, with particular attention to areas where the conditions for deterministic models are inadequate. Examples of stochastic models drawn from genetics, physiology, ecology, and a variety of other biological and medical disciplines.

Mr. Lange (W)

**204. Biomedical Data Analysis.** Prerequisite: consent of instructor. The quantity and quality of observations have been greatly affected by the present-day extensive use of computers. The course is a problem-oriented study of the latest methods in statistical data analysis and the use of such arising in laboratory and clinical research.

Mr. Dixon (F)

**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.

Mr. Peskoff (Sp)

**206. Modeling of Cellular Systems (2 to 4 units).** Students who can contribute to the class either as biologists or theoreticians may attend. Expected performance is based on each individual's background. Study of recently reported characterizations of differentiating systems, flow cytometry, etc. Deterministic, stochastic, and computer simulation models are developed from simple dividing systems through special cell populations. Biological assumptions, indications for various approaches, and relationships to laboratory research and clinical applications are emphasized.

Ms. Newton (W)

**M207. Modeling in Genetic Analysis.** (Same as Anthropology M222R.) Lecture, three hours. Prerequisites: Anthropology M222Q and graduate standing, or consent of instructor. Basic concepts of human genetics, with emphasis on methods of computer-oriented genetic analysis. Topics include segregation analysis, genetic linkage, polygenic (quantitative) models, and population structure.

Ms. Spence (F)

**208. Modeling and Analysis of Neuroelectric Data.** Designed for biologists (especially neuroscientists), but open to other science majors. Mathematical approaches for modeling and developing neural theory are applied to basic neurophysiological phenomena and neural models. Appropriate practical approaches are also presented.

(Sp)

**209. Problems in Fluid and Electrolyte Management (2 units).** Prerequisites: biochemistry, physiology, Fortran equivalent. Principles of fluid and electrolyte balance and acid-base chemistry. The course begins with a brief review of fluid and electrolyte metabolism and mechanisms of physiologic control, with reference to the research literature. This is followed by development and demonstration of the principles for management of acute imbalance, using computer-based patient simulation. Depending on each student's interests, special topics include analysis of patient data, design of parenteral and dialysate fluids, mathematical principles, patient simulation using on-line patient data, or analysis of physiologic mechanisms.

Mr. DeLand (F)

**210. Introduction to Biomedical Computation.** Lecture, three hours; laboratory, three hours. Prerequisite: graduate standing. An introduction to Fortran programming, with a survey of biomedical computer applications and data processing techniques for both clinical and physiological experiments. Pace is rapid and subjects biologically oriented. Not recommended for students who merely wish an introductory course in Fortran programming. Prior knowledge of computers is not required even though the programming skills that are attained by the end of the quarter are quite substantial.

Ms. Newton (F)

**213. Biomedical Laboratory Computing (Biomedical Minicomputing).** Computational and data management problems encountered in the use of small digital computers for biomedical research are analyzed. Practical experience is acquired with the department's minicomputer in system generation and patching, documentation, interfacing, file management, assembler language, and higher order language programming with computer graphics. Selected laboratories are used for experience in the direct processing of physiological data and in controlling laboratory experiments.

Mr. Landaw (W)

**215A. Advanced Biomedical Computation: Graphics.** Lecture, four and one-half hours. Prerequisite: Fortran programming skills. Survey of biomedical graphics applications, rationale. Graphics hardware, software. Graphical representation: glyphs, projections, hidden lines. Interactive graphics programming, individual term projects. S/U or letter grading.

Ms. Newton (Sp)

**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. The course covers basic principles of computed tomography (CT), various reconstruction algorithms, special characteristics of CT, physics in CT, and various biomedical applications.

Mr. S. Huang (W)

**M231. Special Topics: Statistical Methods for Categorical Data.** (Same as Public Health M201E.) Lecture, three hours; discussion, one hour. Prerequisites: Public Health 100B or 101B, Mathematics 150C or 152B, or equivalent, and consent of instructor. Statistical techniques for the analysis of categorical data; discussion and illustration of their applications and limitations.

Mr. Korn (W)

**M232. Statistical Analysis of Incomplete Data.** (Same as Public Health M202F.) Lecture, three hours; laboratory, one hour. Prerequisites: Public Health 100B or 101B, Mathematics 150C or 152B, or equivalent, and consent of instructor. The course discusses the statistical analysis of incomplete data sets. Material is taken from the 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 the methods to applied problems, as well as on the underlying theory. S/U or letter grading. Mr. Little (Sp)

**M246. Probability Models and Statistical Methods in Genetics.** (Same as Anthropology M222Q.) Lecture, three hours. Prerequisites: Anthropology 222P, Mathematics 3A, two quarters of statistics, graduate standing. An introduction to probability models and statistical methods in genetics. Maximum likelihood methods for estimating genetics parameters are introduced and discussed in detail. Mr. Read (W)

**248. Likelihood Theory and Genetic Modeling.** Prerequisite: consent of instructor. The statistical concept of likelihood and its application to scientific inference, with particular reference to genetic modeling. The method of support is contrasted with the more conventional methods (based on significance testing) of likelihood ratio testing and maximum likelihood estimation. Individual projects (computer use optional) may, but need not, involve genetics. Ms. Hodge (Sp)

**CM256. Human Genetics.** (Same as Biology CM256.) Lecture, three hours; discussion, one hour. Prerequisites: Biology 8, Chemistry 25. The application of genetic principles in human populations, with emphasis on cytogenetics, biochemical genetics, population genetics, and family studies. Lectures and readings in the literature focus on current questions in the fields of medical and human genetics and the methodologies appropriate to answer such questions. Concurrently scheduled with course CM156. Independent research project is required of graduate students. Mr. Merriam, Ms. Spence (W)

**M280. Computational Statistics.** (Same as Mathematics M280 and Public Health M207J.) Lecture, three hours. Prerequisites: Mathematics 115A and 150C, or equivalent. Introduction to theory and design of statistical programs: pivoting and other technologies used in stepwise regression, nonlinear regression algorithms, algorithms for balanced and unbalanced analysis of variance, including the mixed model, iterative rescaling, and other methods for log-linear models. Mr. Jennrich (F)

**M281. Survival Analysis.** (Same as Public Health M201K.) Lecture, three hours; discussion, one hour. Prerequisites: Public Health 100C and Mathematics 150C or 152B, or equivalent, and consent of instructor. Statistical methods for the analysis of survival data. Mr. Elashoff (W)

**M282. Problems of Statistical Consultation.** (Same as Public Health M202E.) Lecture, two hours; discussion, one hour; laboratory, two hours. Prerequisite: graduate course in applied statistics. Textbook and original problems requiring special expertise in design and analysis. Computer packages are used to diagnose failure of assumptions, suitability of models, and alternate analyses. Mr. Dixon (W)

**295. Supervised Statistical/Biomathematical Consulting.** Prerequisites: consent of instructor; two graduate-level courses (six units) in biomathematics, biostatistics, or applied statistics; prior experience using computer programs to manage and analyze data. Hands-on experience with data management, modeling, and statistical analysis problems in actual consulting in biomedical and other research areas. Development of skills in formulating analytic problems, choosing techniques, managing data, executing analyses, interpreting results, and preparing reports. S/U or letter grading.

Ms. Wheeler and the Staff (W)

**401. Biomathematics (2 units).** An introduction to research design and statistical and mathematical methods in biomedical research. Special emphasis on tools for critically reading the medical literature. Illustration of computer use in data retrieval and scientific computation in advanced sections. In Progress grading. (F,W)

**596. Directed Individual Study or Research in Biomathematics (2 to 12 units).** Individual study on topics not yet covered by the offerings of the department. May be repeated for credit with topic change. (F,W,Sp)

## Medicine

32-150 Center for Health Sciences,  
825-6275

### Executive Chair

Kenneth I. Shine, M.D.

### Chairs

Lawrence R. Freedman, M.D. (Wadsworth VA)  
Richard J. Glasscock, M.D. (Harbor/UCLA)  
James R. Klinenberg, M.D. (Cedars-Sinai)  
Stanley G. Korenman, M.D. (Sepulveda VA)  
David D. Ulmer, M.D. (Drew/MLK)

### Vice Chairs

Robert S. Sparkes, M.D. (Academic)  
Roy T. Young, M.D. (Training and Clinical)  
Robert S. Mosser, M.D. (Kern Medical Center)

## 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* by 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 sophomore, junior, and senior years of medical school, with the junior and senior years constituting a continuum of clinical experience. Students become integrated into a ward team and 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*.

## Microbiology and Immunology

43-239 Center for Health Sciences,  
825-5661

### Professors

Benjamin Bonavida, Ph.D. (Immunology)  
John L. Fahey, M.D. (Immunology)  
Sydney M. Finegold, M.D. (Bacteriology)  
Sidney H. Golub, Ph.D., in Residence (Immunology)  
Dexter H. Howard, Ph.D. (Mycology)  
David T. Imagawa, Ph.D. (Virology)  
James N. Miller, Ph.D. (Bacteriology)  
Debi P. Nayak, D.V.Sc., Ph.D. (Virology)  
George R. Riviere, D.D.S., Ph.D. (Immunology)  
Jack G. Stevens, D.V.M., Ph.D. (Virology), Chair  
Jerrold A. Turner, M.D. (Parasitology)  
Randolph Wall, Ph.D. (Molecular Biology)  
Felix O. Wettstein, Ph.D. (Molecular Biology)  
Telford H. Work, M.D., M.Ph.H., D.T.M.&H. (Virology)  
Ruth A. Boak, M.D., Ph.D., Emeritus  
David McVickar, M.D., Ph.D., Emeritus  
Margret I. Sellers, Ph.D., Emeritus  
Marietta Voge, Ph.D., Emeritus  
Henry E. Weimer, Ph.D., Emeritus  
Stephen Zamenhof, Ph.D., Emeritus

### Associate Professors

Ronald H. Stevens, Ph.D. (Immunology)  
Jacob Zigelboim, M.D. (Immunology)

### Assistant Professors

Rafi Ahmed, Ph.D. (Virology)  
John Bramhall, Ph.D. (Immunology)  
Asim Dasgupta, Ph.D. (Virology)  
Lawrence T. Feldman, Ph.D. (Virology)  
Michael Lovett, M.D., Ph.D. (Bacteriology)  
Virginia Scofield, Ph.D. (Immunology)

### Lecturers

Margery L. Cook, Ph.D. (Virology)  
Nina Dabrowska, Ph.D. (Mycology)  
Maurice L. White, Ph.D. (Bacteriology)

### Adjunct Associate Professor

George Fareed, M.D. (Molecular Biology)

## 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.

## Master of Science Degree

The department does not accept students whose sole objective is a master's degree.

## Ph.D. 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 favorable letters of recommendation.
- (4) Graduate Record Examination (general test and subject test in biology).
- (5) Acceptable statement of purpose.
- (6) An interview with members of the department graduate student committee when indicated.

For departmental brochures and/or application forms, write to the Graduate Student Office, Department of Microbiology and Immunology, 43-204 CHS, UCLA School of Medicine, Los Angeles, CA 90024.

### Major Fields or Subdisciplines

You are expected to be competent in both microbiology and immunology. However, you must do your thesis work in one of the following divisions: immunology, medical microbiology, or virology.

### Foreign Language Requirement

There is no foreign language requirement for the degree.

### Course Requirements

(1) Microbiology and Immunology 202A, 202B, 202C, 202D are required and must be completed during your first year of study.

(2) Course 596 is required. You will complete a laboratory rotation program during your first year of study.

(3) Courses M258A and M258B are required.

(4) Biological Chemistry M253 and six additional units of graduate biochemistry (Biological Chemistry M267 is recommended) are required.

(5) Additional course requirements are determined by your major field and your major professor.

### Teaching Experience

Teaching assignment in one laboratory section of Microbiology and Immunology 201, M212, or another laboratory course presented by the department is required.

### Qualifying Examinations

The departmental written qualifying examination is to be taken at the end of your first year of graduate study. The examination consists of a three-hour written test in your major (immunology, medical microbiology, or virology) and two three-hour tests in two additional minor field topics selected from bacteriology, genetics, immunology, molecular biology, mycology, parasitology, and virology. The examinations require factual knowledge, the ability to analyze experimental work, and the capacity to design problem solving experiments and are graded on a pass/fail basis. Each examination is separately scheduled at the end of your first year and may be repeated once if failed.

You have the option of completing the University Oral Qualifying Examination by the end of either the second year (Plan I) or the third year (Plan II). Advancement to candidacy is awarded after successful completion of this examination. If inadequacies are encountered, you may be required to repeat the examination, in which case Plan II becomes mandatory.

Plan I (passed within 24 months) includes the preparation and defense of a research proposal (the topic will be the same as the research that you intend to use as your thesis work) and the demonstration of general knowledge of microbiology and immunology.

Plan II (passed within 36 months) includes the preparation and defense of a research proposal (the topic will be in a different area and will use a different approach from that of your thesis project and research, but within the fields of interest in the department), an explanation of the research and results, and the demonstration of general knowledge of microbiology and immunology.

The details of the dissertation requirement are supervised by your professor and doctoral committee. The dissertation will demonstrate an original and independent contribution to scientific knowledge acceptable for publication in a major scientific journal and presented in the University-required format.

### Final Oral Examination

The final oral examination is optional with the doctoral committee. However, you are required to present a special seminar based on your dissertation.

### Upper Division Courses

**M185. Immunology.** (Same as Biology M185 and Microbiology M185.) Lecture, three hours; discussion, one hour. Prerequisites: Biology 8, Chemistry 23, 25. Recommended corequisite: Chemistry 152 or 156. Introduction to experimental immunobiology and immunochemistry; cellular and molecular aspects of humoral and cell immune reactions.

Mr. Clark, Mr. Sercarz (F)

**M186. Experimental Design in Immunology.** (Same as Biology M186 and Microbiology M186.) Laboratory, twelve hours. Prerequisites: course M185, consent of instructor. Corequisite: course M187. The course focuses on a limited number of situations designed to train the student in organizing and evaluating immunological laboratory experiments.

Mr. Clark, Mr. Sercarz (W)

**M187. Immunology Seminar (2 units).** (Same as Biology M187 and Microbiology M187.) Prerequisites: course M185, consent of instructor. Corequisite: course M186. Student presentation of selected papers from the immunology literature. Designed to serve as a forum for the critical analysis of research papers.

Mr. Clark, Mr. Sercarz (W)

**M188. Immunological Techniques (2 units).** (Same as Microbiology M188.) Prerequisites: course M185 with a grade of A, consent of instructor. Techniques in immunochemistry and immunobiology. State of the art advanced technology for performance of experiments in modern immunology in a workshop format. Each workshop is of approximately two full days duration.

Mr. Sercarz (W)

**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.

(F,W,Sp)

### Graduate Courses

Undergraduates may enroll in some graduate courses by 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.

(F, first weeks in September)

**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.

(F)

**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.

(F)

**202D. Medical Mycology and Parasitology (2 units).** Prerequisite: consent of instructor. Morphology, physiology, and pathogenicity of the fungi which cause human and animal diseases. Study of the morphology, biology, host-parasite relationship, public health problems, and control of protozoa, helminths, and arthropods parasitic in and on humans and animals. (F)

**M206. Secretory and Gastrointestinal Immunity (2 units).** (Same as Oral Biology M206.) The anatomy and physiology of the oral cavity, the intestines, and the related lymphatic and blood vascular systems are reviewed in reference to the immune system. The secretory and systemic immune systems are discussed in detail, with particular emphasis on the unique properties of SIgA. The ability to process enteric antigens, to respond, and to regulate enteric immunity is discussed in terms of recent experimental findings. The role that enteric immunity may play in diseases of the GI tract, such as dental caries and inflammatory bowel diseases, is presented. Students participate in discussions following each lecture and present seminars based on a review of the relevant scientific literature.

Mr. Riviere (Sp, alternate years)

**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 an interest in any field of biology or chemistry. The course encompasses an overview of animal viruses, including viral structure, virus cell interaction, virus replication, and viral oncogenesis. Special emphasis on understanding the molecular mechanism involved in the control and regulation of replication, transcription, and translation of viral genome and its complex interaction with host.

Mr. Nayak (Sp)

**210. Medical Mycology (3 units).** Prerequisites: Microbiology 101, C103A, C103B, M185. Recommended: Microbiology 110 (consent of instructor may be obtained in special cases). A study of the morphology, physiology, and pathogenicity of fungi causing human and animal diseases.

Mr. Howard (Sp)

**210L. Medical Mycology (2 units).** Prerequisites: Microbiology 101, C103A, C103B, M185. Recommended: Microbiology 110 (consent of instructor may be obtained in special cases). Laboratory application of principles discussed in course 210. Laboratory must be taken by undergraduate students.

Mr. Howard (Sp)

**M212. Laboratory Procedures in Immunological Research (2 units).** (Same as Microbiology M212.) Prerequisites: course M185 or equivalent and consent of instructor. Limited to 25 students (enroll through Microbiology and Immunology). A series of intensive laboratory workshops designed to acquaint the student with the advanced methodologies utilized for immunological research. Workshops are offered at regular intervals and last two to three days. Successful completion of four workshops constitutes the requirements for the course. May be repeated for credit with topic change. S/U grading. (F,W,Sp)

**214. Bacterial Pathogenesis (2 units).** Prerequisites: course 202B and/or consent of instructor. A study of the genetic and biochemical properties of bacteria and factors of the host which are relevant to the pathogenesis of bacterial diseases.

Mr. Lovett, Mr. Miller (W)

**M215. Interdepartmental Course in Tropical Medicine (2 units).** (Same as Medicine M215, Pathology M215, and Pediatrics M215.) Prerequisites: basic courses in microbiology and parasitology of infectious diseases in the School of Medicine or Public Health. The course draws on expertise in the Departments of Medicine, Pediatrics, Pathology, and Microbiology and Immunology to present current knowledge about diseases prevalent in tropical areas of the world. Lectures, demonstrations, and audiovisual materials are used to describe diseases which are prevalent in or localized in certain geographic areas. Although major emphasis is on infectious diseases, problems in nutrition and exotic noninfectious diseases are covered. A syllabus supplements the topics covered in the classroom. S/U grading.

Ms. Voge (Sp, alternate years)

**M222. Membrane Behavior (2 units).** (Same as Microbiology M222.) Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. Membrane structure and biogenesis are described and related to the function of membranes as both barriers to and mediators of normal and pathological biological responses. General principles of membrane behavior are developed from studies of simple and complex model systems.

Mr. Bramhall

**M223. Membrane Research Seminar (2 units).** (Same as Microbiology M223.) Prerequisite: consent of instructor. Critical discussions of the current literature in membrane research, with emphasis on the relationship between structure and function in lipid bilayers.

Mr. Bramhall

**250. Cell and Molecular Biology.** Lectures and student seminar presentations. A review of selected current topics in molecular and cellular biology. Topics include recent experimental results on the organization, expression, and regulation of genes in eukaryotic cells. S/U or letter grading.

Mr. Dasgupta (W)

**251. Seminar in Microbiology and Immunology (2 units).** Consideration of the history of infectious diseases, their host-parasite relationships, etiology, pathogenesis, epidemiology, diagnosis, and immunity. S/U or letter grading.

Mr. Howard (W)

**252. Seminar in Viral Pathogenesis (2 units).** Prerequisites: course 201, Microbiology 102, or equivalent, or consent of instructor. A consideration of basic phenomena involved in pathogenesis of viral disease, using carefully selected examples. Emphasis on those systems which have been meaningfully dissected by quantitative immunological and molecular biological methods.

Mr. Stevens (F)

**254. Immunogenetics (2 units).** Review of current literature in the field of immunogenetics, with emphasis on fundamental studies involving genetic and immunologic principles and techniques. Selected topics are discussed and results interpreted; conclusions and experimental methods are evaluated.

(Sp)

**255. Seminar in Medical Mycology (2 units).** Corequisite: course 210. Review of current and recent literature in the field of medical mycology, with emphasis on the host-parasite relationships in the human and animal mycoses. Students are expected to prepare reviews of selected subjects and to discuss contributions of various workers from the standpoint of experimental methods, results, their interpretation, and evaluation. S/U grading.

Mr. Howard (Sp)

**M256. Seminar in Viral Oncology (2 units).** (Same as Pathology M256.) An advanced research seminar designed to consider the current developments in the field. Selection of current subjects and publications dealing with tumor viruses, oncogenesis, development, and cellular regulation.

Mr. Baluda

**M257. Seminar in Host-Parasite Relationships (2 units).** (Same as Microbiology M257.) Prerequisite: consent of instructor. Recent advances in the knowledge of host-parasite interactions and means of controlling the parasites.

Mr. Miller, Mr. Pickett (Sp)

**M258A. Advanced Immunology (3 units).** (Same as Biology M250A and Microbiology M258A.) Lecture, 90 minutes; discussion, 90 minutes. Prerequisite: course M185 or 202A or equivalent or consent of instructor. The course is designed to provide continuity between the basic immunology courses and the original research literature. The major aspects of the immune system are intensively examined, with emphasis on fundamental principles and on advances of the past five years. Featured are lectures dealing with the development of B and T lymphocytes, the interaction of these two lymphocyte subpopulations in the production of immunoglobulin, and cell-mediated immunity. S/U or letter grading. (W)

**M258B. Advanced Immunology (3 units).** (Same as Biology M250B and Microbiology M258B.) Lecture, 90 minutes; discussion, 90 minutes. Prerequisites: course M185 or 202A, or equivalent, and course M258A, or consent of instructor. A continuation of course M258A which considers the fields of immunohistochemistry, surface membrane receptors, and lymphokines. S/U or letter grading. (Sp)

**M260. Immunology Forum (2 units).** (Same as Microbiology M260.) Prerequisite: course M185. A broad range of current topics in immunology is presented and discussed at an advanced frontier level. This is a continuing UCLA-wide, general graduate-level seminar involving faculty, postdoctoral immunologists, and graduate students from diverse departments.

Mr. Sercarz (F,W,Sp)

**261. Tumor Immunology (2 units).** Prerequisites: courses M258A and M258B, or equivalent. Experimental basis for investigation of immune response to tumors; review of cell-mediated immunity and related humoral immunity; evidence for tumor-associated antigens in man; evaluation of attempts at immunotherapy of tumors. S/U or letter grading.

Mr. Golub (Sp, alternate years)

**262. Seminar in Immunobiology of Cancer (2 units).** Prerequisite: consent of instructor. Review of recent literature in the fields of immunology, biology, and biochemistry of cancer, with emphasis on fundamental studies involving cell-mediated immunity, humoral response, tumor specific antigens, and new techniques. Reports on scientific meetings are discussed and evaluated. S/U grading.

Mr. Bonavida (W)

**M263. Cellular Immunology Seminar (2 units).** (Same as Microbiology M263.) Prerequisite: consent of instructor. Critical discussions of the current literature in T and B cell immunology, with emphasis on molecular mechanisms.

Mr. Sercarz (F,W,Sp)

**264. Molecular Microbiology and Cell Biology (2 units).** Prerequisites: courses 202A, 202B, 202C, 202D, 250, or consent of instructor. Discussion of selected current topics related to microbiology and cell biology, with special emphasis on an understanding of the basic phenomena at the molecular level. S/U grading.

Mr. Wettstein (F)

**265. Co-Seminar in Molecular Biology of Animal Viruses (2 units).** Prerequisites or corequisites: course 208, consent of instructor. Critical review and analysis of selected papers in the field. Topics include structure and biology of animal viruses and virus host interaction at the cellular and molecular level.

Mr. Nayak (Sp)

**270. Immunology in Disease (2 units).** Lecture, one hour; discussion, one hour. Prerequisite: basic immunology. Introduction to the 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 the role of immunity in infection). Students prepare a 20- to 30-minute presentation on a selected topic.

Mr. Fahey (W, alternate years)

**271. Research Seminar in Virology (2 units).** Prerequisite: consent of instructor. Selected topics in virology, including viral structures, host virus interaction, and regulation of viral and host gene expression, are presented and discussed in depth.

Mr. Nayak (Sp)

**M282. Major Histocompatibility Complexes: Genetics, Biochemistry, and Biology (2 units).** (Same as Biology M282.) Lecture, one hour; discussion, one hour. Prerequisites: course M185 or equivalent, genetics, biochemistry. Lectures and discussion of key papers underlying the present concepts of MHC structure and function. Emphasis on the murine MHC (H-2), but where appropriate and illustrative, the human MHC is discussed.

Mr. Clark (W)

**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.

Mr. Hankinson, Mr. Seeger (W)

**M298. Seminar in Current Topics in Molecular Biology (2 units).** (Same as Biological Chemistry M298, Biology M298, Chemistry M298, Microbiology M298, and Molecular Biology M298.) Discussion, one hour. Prerequisite: consent of instructor and graduate adviser of interdepartmental Molecular Biology Ph.D. committee. 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 Examination (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 the graduate student with the advice of the adviser. Fields of study may be in bacteriology, immunology, mycology, parasitology, virology, tumor biology, or cell biology.

## Molecular Biology (Interdepartmental)

The Ph.D. degree program in Molecular Biology draws its staff members from participating departments in the health and life sciences and from the Molecular Biology Institute. For details on this interdisciplinary program, see Chapter 5 on the College of Letters and Science.

## Neurology

1-239 Reed Neurological Research Center, 825-5647

### Chair

Richard D. Walter, M.D.

### Vice Chairs

Mark A. Goldberg, M.D., Ph.D. (*Harbor/UCLA*)

Christian Herrmann, Jr., M.D.

Wallace W. Tourtellotte, M.D., Ph.D. (*Wadsworth VA*)

Claude G. Wasterlain, M.D. (*Sepulveda VA*)

## Scope and Objectives

Neurology is the medical science dealing with the normal and diseased nervous system. Neurological disorders are often associated with significant disability, morbidity, and mortality. Their higher incidence in association with greater longevity of the population, increased awareness, improved diagnostic methods, and other factors place neurological disorders among the major medical problems today. The Department of Neurology and the Reed Neurological Research Center provide means for coordinated basic science and a 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 clinical examination of the normal nervous system; in the second year, neurological history-taking and neurological examination of afflicted patients are stressed. The third year consists of a clerkship at an affiliated hospital, 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*.

## Neuroscience (Interdepartmental)

73-346 Center for Health Sciences, 825-8153

### Professors

Larry L. Butcher, Ph.D. (*Psychology*)

Carmine D. Clemente, Ph.D. (*Anatomy*)

Samuel Eiduson, Ph.D., in Residence (*Psychiatry and Biological Chemistry*), Chair

Ronald M. Harper, Ph.D. (*Anatomy*)

Michael T. McGuire, M.D. (*Psychiatry*)

Richard W. Olsen, Ph.D. (*Pharmacology*)

Charles D. Woody, M.D., in Residence (*Anatomy*)

Stephen Zamenhof, Ph.D., Emeritus (*Microbiology and Immunology*)

### Associate Professor

Michael S. Letinsky, Ph.D. (*Physiology*)

Peter M. Narins, Ph.D. (*Biology*)

## Scope and Objectives

Few research fields have greater potential and importance to mankind than neuroscience. The brain is responsible for every human thought, emotion, action, and accomplishment. It is a miraculous organ which orchestrates and paces human maturation; permits us to learn, remember, reason, and behave as we do; and coordinates the function of every other organ and structure in the body.

To understand this complex organ completely is, perhaps, an unapproachable objective since it is the principal organ responsible for mankind's evolution and is itself constantly evolving. Yet, basic questions relating to neural function and dysfunction are approachable, and the solutions to many human neurological and psychiatric disorders can be achieved only through brain research.

The interdisciplinary program of graduate training leading to the Ph.D. in Neuroscience utilizes facilities, resources, and activities of the Brain Research Institute and is administered by an interdepartmental degree committee.

## Ph.D. Degree

### Admission

All 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 Neuroscience Office, 73-346 CHS, UCLA, Los Angeles, CA 90024.

### Major Fields or Subdisciplines

Biobehavioral sciences; neuroanatomy; neurochemistry; neurocybernetics and communication; neuroendocrinology; neuroimmunology; neuropathology; neuropharmacology; neurophysiology.

### Foreign Language Requirement

The program does not have a language requirement but does have a breadth requirement which can be satisfied in one of the following ways:

- (1) Passing the Graduate School Foreign Language Test in one of the approved languages (French, German, or Russian) with a score of 500 or better. Any exceptions must be approved by the neuroscience committee.



(2) Completing one of the recommended series of biomathematics computer courses.

(3) Completing an in-depth minor in an area related to your field. A minor is defined as at least eight units of study beyond the introductory level.

No student will be advanced to candidacy who has not met this breadth requirement.

## Course Requirements

Basic course requirements include Anatomy M206A-M206B, Biological Chemistry 201A-201B, Biology 166, 171, Neuroscience 233, 254, and electives and lab rotations as determined in consultation with your adviser.

Substitutions to the basic requirements may be made depending on your background and with the consent of the graduate adviser. You are expected to complete the core courses within your first two years of study.

## Teaching Experience

Teaching experience is not required for the degree. However, such experience is obtained by virtually all students in Neuroscience 233, which is required.

## Qualifying Examinations

A written qualifying examination is required following completion of the core requirements. The objective of this examination is to test your 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, you and your adviser choose the doctoral committee to administer the University Oral Qualifying Examination, which is normally taken after the written qualifying examination and the breadth requirements have been completed.

When you have passed the oral examination, you are advanced to candidacy and may begin work on the dissertation.

## Final Oral Examination

The final oral examination is optional with your doctoral committee.

## Graduate Courses

**200A-200B-200C. Clinical Concepts in the Neurosciences (2 units each).** Presents information concerning neurological and psychiatric disorders for students from basic science backgrounds.

Mr. Walter (odd years)

**M201A-M201B-M201C. The Functional Organization of Behavior (2 units each).** (Same as Psychiatry M201A-M201B-M201C.) Prerequisite: consent of instructor. Course M201A is prerequisite to M201B, which is prerequisite to M201C. **M201A** is introductory and focuses on the development of behaviors within different species and the functional uses of behaviors. An evolutionary biological perspective is used as the framework. **M201B** focuses on research studies designed to take into account the functional behavior of animals. **M201C** focuses on special questions of interest to students.

Mr. Eiduson, Mr. McGuire (F,W,Sp)

**M204. Structure and Function of the Limbic System (2 units).** (Same as Neurology M204.) Prerequisite: consent of instructor. Current knowledge of the mammalian limbic system is 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. The pathophysiology of limbic epilepsy is related to normal limbic system structure and functions.

Mr. Babb

**205. Brain-Behavioral Strategies for the Neurosciences (3 units).** Prerequisite: consent of instructor. Emphasis on behavioral designs, methods, and instruments employed to test specific neurological afferent-efferent and integrative systems of the central nervous system. The programming of signals and incentives in arousal, habituation, classical conditioning, and operant conditioning paradigms is discussed in terms of the neural challenges for the coping animal. Behavioral methods are emphasized, along with concurrent recording of neurophysiological data. The course is designed primarily to present practical behavioral techniques to neuroscience students.

Mr. McGuire

**M206A-M206B. Neurosciences: The Introductory Course for Graduate Students (5 units, 7 units).** (Same as Anatomy M206A-M206B.) Lecture, three hours; laboratory, two hours (Winter). Lecture, six hours; laboratory, two hours (Spring). Prerequisite: a course (or equivalent) in basic and/or general physiology (such as Biology 171 or Physiology 101) or consent of instructor. Introductory course in the basic principles of the nervous system for graduate students as a prerequisite to more advanced courses. Fundamental approaches to neuroanatomy (Winter) and neurophysiology and the brain mechanisms for behavior (Spring) are stressed. In Progress grading.

Mr. Decima, Mr. Scheibel, and the Staff (W,Sp)

**233. Seminar in Neuroscience (2 units).** Topics of current importance are presented for discussion. Subject matter to be announced.

**M235. Gut and Brain Peptides (2 units).** (Same as Anatomy M235 and Physiology M235.) Prerequisite: consent of instructor. Current knowledge of gut and brain peptides is presented by surveying their chemistry, anatomy, and physiology. Experimental approaches used to study biologically active peptides are discussed. In addition, current information about each of the major gut and brain peptides is reviewed. S/U or letter grading.

Mr. Brecha, Mr. Reeve, Ms. Tache (W)

**254. Interdisciplinary Research Seminar (2 units).** Lectures and discussions concern many different disciplinary approaches to knowledge of brain function. The subject matter serves to broaden the experience of students studying in fields other than that of the lecturer and offers new information in depth from students in fields closely related to the subject discussed.

**256A-256B-256C. Survey of the Basic Neurological Sciences (2 units each).** Summary information concerning methodologies utilized in different research approaches to brain study (e.g., neurophysiology, neuroendocrinology, brain ultrastructure, neuropharmacology, and others) and brief review of present state of knowledge available from each. For students with interest in interdisciplinary aspects of brain research.

(Odd years)

**259A-259B-259C. Neurophysiology of Behavior: The Fetus, Newborn, and Infant (2 units each).** An integrated review of neuroanatomic, neurophysiologic, and behavioral development of human and animal fetuses and infants. Behavior is correlated with the development of the brain during this period of rapid change in both.

Mr. Parmelee

**M260. Fundamental Concepts of Neuroendocrinology.** (Same as Anatomy M260.) Lecture, two hours; discussion, two hours. Prerequisites: Anatomy M206A-M206B and Biological Chemistry 101C, or consent of instructor. Basic concepts of neuroendocrine integration, including analysis of the current literature and research techniques.

Mr. Gorski (W, odd years)

**M261. Neuronal Circuit Analysis (2 units).** (Same as Anatomy M261.) Lecture/discussion, three hours. Prerequisites: Anatomy M206A-M206B or equivalent. The course is run in a seminar form with strong emphasis on specific reading assignments. It presents an integrated view of neuronal circuit analysis at an advanced level and examines the layout and performance of a variety of basic neuronal circuits serving different control functions.

Mr. Schlag (W)

**596. Directed Individual Study or Research (2 to 12 units).** Prerequisite: consent of instructor.

Mr. Eiduson

**597. Preparation for Ph.D. Qualifying Examination (2 to 12 units).** Prerequisite: consent of instructor.

Mr. Eiduson

**599. Dissertation Research for Ph.D. Candidates (4 to 12 units).** Designed for students requiring special instruction or time to work on dissertation.

Mr. Eiduson

# Obstetrics and Gynecology

22-154 Center for Health Sciences,  
825-5688

## Chair

J. George Moore, M.D.

## Vice Chairs

Richard A. Bashore, M.D. (Administration)

Ezra C. Davidson, M.D. (Drew/MLK)

William J. Dignam, M.D.

John R. Marshall, M.D. (Harbor/UCLA)

Dominic Muzsnai, M.D. (Olive View)

Maclyn E. Wade, M.D. (Cedars-Sinai)

## Scope and Objectives

The undergraduate program in obstetrics and gynecology is designed to teach students the development of the physiology of women in infancy, childhood, and adolescence, understanding of ovarian and uterine function during the menstruating years, experience in the management of obstetric deliveries, and an understanding of the changes in the postmenopausal years. The program includes experience in the management of normal and pathological obstetrical conditions, the anatomical and physiological variants following childbirth, and gynecological abnormalities not necessarily related to reproduction.

Students work in the wards and the outpatient clinic during the third year, with clinical experience continuing in the fourth year in the advanced clinical clerkship.

The program in graduate medical education in obstetrics and gynecology includes a four-year course of instruction. Subspecialty units provide instruction in perinatal medicine, general gynecology, gynecologic oncology, reproductive endocrinology, and family planning and sex counseling.

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

2-142 Jules Stein Eye Institute, 825-5051

### Chair

Bradley R. Straatsma, M.D.

### Vice Chairs

Robert E. Christensen, M.D.  
Sherwin J. Isenberg, M.D. (*Harbor/UCLA*)

## 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 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. By lectures, demonstrations, discussions, and the opportunity to examine patients 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*.

## Pathology

13-327 Center for Health Sciences,  
206-6307

### Professors

Marcel A. Baluda, Ph.D.  
Luciano Barajas, M.D., *in Residence*  
Pasquale A. Cancilla, M.D., *Chair*  
Alistair J. Cochran, M.D., *in Residence*  
Walter F. Coulson, M.D.  
Robert Y. Foos, M.D.  
Yao-Shi Fu, M.D.  
Hideo E. Itabashi, M.D., *in Residence*  
Harrison Latta, M.D.  
Klaus J. Lewin, M.D., *Vice Chair*  
M. Michael Lubran, M.D., Ph.D., *in Residence*  
Robert J. Morin, M.D., *in Residence*  
Byron A. Myhre, M.D., Ph.D., *in Residence*  
Donald E. Paglia, M.D.  
David D. Porter, M.D.  
Denis O. Rodgerson, Ph.D., *in Residence*  
George S. Smith, M.D.  
Julien L. Van Lancker, M.D.  
M. Anthony Verity, M.D.  
Roy L. Walford, M.D.  
Luciano Zamboni, M.D., *in Residence, Vice Chair*  
William H. Carnes, M.D., *Emeritus*  
Sidney Madden, M.D., *Emeritus*

### Associate Professors

Judith A. Berliner, Ph.D., *in Residence*  
Arthur M. Cohen, M.D., *in Residence*  
Paul C. Fu, Ph.D., *in Residence*  
Juan Lechago, M.D., Ph.D., *in Residence*  
Joseph M. Mirra, M.D.  
Faramarz Naeim, M.D., *in Residence*

### Assistant Professors

David S. Bruckner, Sc.D., *in Residence*  
Paul S. Dickman, M.D., *in Residence*  
Gloria Duane, M.D., *in Residence*  
Faye A. Eggerding, M.D., Ph.D.  
Oliver Hankinson, Ph.D., *in Residence*  
William Lewis, M.D.

### Adjunct Professors

Richard A. Gatti, M.D.  
Ruth Gussen, M.D.  
Frank M. Hirose, M.D.

### Adjunct and Visiting Associate Professors

Peter J. Howanitz, M.D., *Adjunct*  
Robert K. Nieberg, M.D., *Adjunct*  
Shi-Kaung Peng, M.D., *Visiting*  
Dorothy Rosenthal, M.D., *Adjunct*  
Nora C.J. Sun, M.D., *Adjunct*

### Adjunct Assistant Professors

Sunita M. Bhuta, M.D.  
Camilla J. Cobb, M.D.  
Richard Weindruch, 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.

## Master of Science Degree

Students are generally accepted into the program for the purpose of obtaining a Ph.D. in Experimental Pathology. However, the department also awards an M.S. degree in Experimental Pathology in cases where a student is unable to finish the full Ph.D. program but whose completed work is adequate to the standards and minimum requirements set for a master's degree.

The general requirements for the M.S. degree are the same as those for the Ph.D., with the following exceptions:

- (1) Only 30 units of the listed electives are required in addition to the core courses.
- (2) You will also be expected to enroll in a minimum of eight units of Pathology 599 each quarter, starting in the third year. These may not be applied toward the minimum course requirement for the degree.
- (3) You must pass the written qualifying examination at the master's level. The University Oral Qualifying Examination acts as the comprehensive examination. A thesis is also required, which encompasses individual research.

## Ph.D. in Experimental Pathology

### Admission

In addition to the University minimum requirements, Graduate Record Examination Aptitude Test scores and three letters of recommendation are required. There is no application form in addition to the one used by the Graduate Division. Because of the sequencing of classes, applicants are generally considered for admission to the Fall Quarter only. For departmental brochures, write to the Chair, Department of Pathology, 13-327 CHS, UCLA School of Medicine, Los Angeles, CA 90024.

Students intending to take advanced degrees in the Department of Pathology must have a

bachelor's degree in physical or biological sciences or in the premedical curriculum. M.D.s are also encouraged to apply. Minimum course requirements for admission normally include one year of calculus, physics, general chemistry, organic chemistry, and biological sciences. A physical chemistry course requiring calculus, a course in molecular biology, and a course in histology are recommended and are required before taking the written qualifying examination. In some cases, deficiencies in the prerequisites may be fulfilled in the first year of study.

## Course Requirements

The following courses are required: Pathology 231A, M240, 242A, 242B, 242C, 244, 250A-250B-250C, 251, and Biomathematics 170A. Three laboratory rotations (Pathology 261A-261B-261C) must be taken to intelligently select a thesis adviser. In addition, if you are beginning the program with a bachelor's degree, you must select 40 units from remaining pathology courses and related biomedical areas of interest at the upper division or graduate level. Within these electives, you must take courses to obtain a basic knowledge of biochemistry and molecular biology. If you are entering the program with a master's degree or M.D., you may have fewer elective units to complete for the Ph.D.

## Teaching Experience

You may assist for one or two quarters in medical or dental pathology courses to gain teaching experience.

## Qualifying Examinations

After the core course requirements are completed (usually at the end of the second year), a comprehensive written qualifying examination covering core courses and required basic knowledge will be administered. If examiners feel that some questions should be elaborated on orally, you must do this within three months of the written examination. If failed, the examination may be repeated.

Six months to one year after the written examination, the University Oral Qualifying Examination is administered by the doctoral committee. This examination normally includes defense of the subject matter of your proposed dissertation topic. You are expected to have done preliminary work before the examination and to demonstrate a wide and comprehensive knowledge of your special subject. After passing, you advance to candidacy.

## Final Oral Examination

All candidates are required to defend their dissertation at an oral examination open to the public. The purpose of the dissertation is to demonstrate ability for independent investigation and proficiency in the field.

## Graduate Courses

**200A. Dental Pathology (3 units).** Prerequisite: consent of instructor. Emphasizes the fundamental causes of disease processes, using as examples selected lesions or diseases of major organ systems.

Mr. Foos and the Staff

**M215. Interdepartmental Course in Tropical Medicine (2 units).** (Same as Medicine M215, Microbiology and Immunology M215, and Pediatrics M215.) Prerequisites: basic courses in microbiology and parasitology of infectious diseases in the School of Medicine or Public Health. The course draws on expertise in the Departments of Medicine, Pediatrics, Pathology, and Microbiology and Immunology to present current knowledge about diseases prevalent in tropical areas of the world. Lectures, demonstrations, and audiovisual materials are used to describe diseases which are prevalent in or localized in certain geographic areas. Although major emphasis is on infectious diseases, problems in nutrition and exotic noninfectious diseases are covered. A syllabus supplements the topics covered in the classroom. S/U grading.

Ms. Voge (Sp, alternate years)

**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 are presented. Concentration is in the area of general pathology.

Mr. Verity and the Staff

**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 are presented. Concentration is in the area of general pathology. In Progress grading.

Mr. Lewin and the Staff

**232. Topics in Vertebrate Neurobiology (2 units).** An introduction to the cell biology of the vertebrate central nervous system, with special reference to its development, structure, and potential disease processes.

**235A-235B. Regulation of Gene Expression in Mammalian Cells (2 units each).** Prerequisite: consent of instructor. Description of intracellular information flow in mammalian cells by stimuli of different natures, as well as induced changes such as induction, repression, differentiation, and neoplastic transformation, is analyzed. Use of culture models and the biopathological implications are stressed.

(F, 235A; W, 235B; alternate years)

**M240. Immunopathology (2 units).** (Same as Medicine M240.) Prerequisites: immunology course, consent of instructor. Study of the role of immunologic phenomena in the production of lesions and disease. Topics include immuno complex disease, antitissues antibody, immunologic mediators, cell-mediated immunity, and infectious diseases.

Mr. Glasscock, Mr. Porter

**242A. Molecular Mechanisms in Disease (2 units).** Prerequisites: course 231A, consent of instructor. A description of molecular events resulting from administration of injurious chemical and physical agents (u.v., X rays, carcinogens, toxins, etc.) and from reactions to injuries (e.g., necrosis, degeneration, hyperplasia, neoplasia, inflammation, etc.) and an interpretation of structural and functional disturbances in terms of the molecular alterations.

Mr. Van Lancker and the Staff

**242B. Molecular Mechanisms in Disease (2 units).** Prerequisites: course 242A, consent of instructor. A description of molecular events resulting from administration of injurious chemical and physical agents (u.v., X rays, carcinogens, toxins, etc.) and from reactions to injuries (e.g., necrosis, degeneration, hyperplasia, neoplasia, inflammation, etc.) and an interpretation of structural and functional disturbances in terms of molecular alterations.

Mr. Van Lancker and the Staff

**242C. Molecular Mechanisms in Disease.** Prerequisite: consent of instructor. The course covers aspects of neoplasia in relation to alterations in the control of cell growth, chemical carcinogenesis, and the biology of cancer.

Mr. Hankinson

**244. Electron Microscopy in Experimental Pathology (3 units).** Prerequisite: consent of instructor. Ultrastructural aspects of pathology, including introduction to use of modern methods of electron microscopy in pathological studies, essentials of normal ultrastructure, and ultrastructural phenomena in general pathology.

Ms. Berliner, Mr. Zamboni

**245. Environmental Pathology.** Prerequisites: graduate standing, consent of instructor. Designed to explore the interrelationships of man with his total environment. A series of special topics are presented to discuss the effect on man of changes in the compositions of air, water, soil, and other materials. S/U grading.

Mr. O'Donnell and the Staff

**250A-250B-250C. Pathology Graduate Student Seminar.** Limited to and required of all students in experimental pathology. Review and discussion of current literature and research in special topics of experimental pathology.

**251. Pathology Graduate Student Laboratory Seminar.** Prerequisite: consent of instructor. The course consists of ten, two-hour seminars which may include demonstrations of apparatus and methods dealing with new and advanced experimental techniques of value in experimental pathology. The seminars are conducted by Pathology Department staff and guest lecturers. Subjects include the biochemistry, biological and morphological techniques in tissue fractionation, tissue culture, and radioautography (electron microscopy, etc.) that are frequently used in the study of disease mechanisms.

Mr. Hankinson

**253. Free Radical Pathology (2 units).** Lecture, four and one-half hours. Prerequisites: basic biochemistry, physical chemistry. Free radicals, mechanisms of formation, properties, and reactions. Reactions with significant biomolecules. Modes of production *in vivo*. Reactions *in vivo*. Protection against and sensitization toward these damaging effects.

Mr. O'Donnell

**M256. Seminar in Viral Oncology (2 units).** (Same as Microbiology and Immunology M256.) An advanced research seminar designed to consider the current developments in the field. Selection of current subjects and publications dealing with tumor viruses, oncogenesis, development, and cellular regulation.

Mr. Baluda

**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.

Mr. Taylor

**M258. Pathologic Changes in Toxicology.** (Same as Pharmacology M258.) Designed to give students experience in learning the 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 are covered.

Ms. Berliner

**260. Quantitative Approaches to Microscopic Anatomy (2 units).** Prerequisite: consent of instructor. Practical and theoretical approaches in the application of measurement to anatomical structures. General principles of estimation of volume, surface area, and number are covered by stereology and other techniques.

Ms. Berliner

**261A-261B-261C. Laboratory Rotation (2 units each).** (Formerly numbered 251A-251B-251C.) Laboratory, six hours. An introduction to research with individual instructors, laboratories.

**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.

Mr. Hankinson, Mr. Seeger (W)

**596. Directed Individual Study or Research (4 to 12 units).** Individual research with members of the staff or of other departments, the latter for the purpose of supplementing programs available in the department. S/U grading.

**597. Preparation for Qualifying Examinations (2 to 8 units).** Prerequisite: one year of coursework in pathology. 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

22-401 Marion Davies Children's Center, 206-6327

### Executive Chair

Joseph W. St. Geme, Jr., M.D.

### Chairs

Delbert A. Fisher, M.D. (*Harbor/UCLA*)

William F. Friedman, M.D.

Benjamin M. Kagan, M.D. (*Cedars-Sinai*)

Robert J. Schlegel, M.D. (*Drew/MLK*)

## Scope and Objectives

The Department of Pediatrics encompasses four teaching hospitals: the Center for Health Sciences at UCLA, Harbor/UCLA Medical Center in Torrance, Martin Luther King, Jr./Drew Medical Center, and Cedars-Sinai Medical Center. The clinical fundamentals course offers medical students detailed instruction in the techniques of the clinical examination of pediatric patients.

The required six-week clinical clerkship in pediatrics is given at one of the four hospitals. In-depth electives in the Department of Pediatrics are listed in the *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*.

## Pharmacology

23-278 Center for Health Sciences, 825-5596

### Professors

Robert O. Bauer, M.D.

Arthur K. Cho, Ph.D., *Vice Chair*

Matthew E. Conolly, M.D.

Werner E. Flacke, M.D.

Robert George, Ph.D.

Mark A. Goldberg, M.D., Ph.D., *in Residence*

William L. Hewitt, M.D.

Murray E. Jarvik, M.D., Ph.D.

Donald J. Jenden, M.D., *Chair*

Peter Lomax, M.D., D.Sc.

Ronald Okun, M.D., *in Residence*

Richard W. Olsen, Ph.D.

Dermot B. Taylor, M.D.

Jeremy H. Thompson, M.D., F.R.C.P.I.

### Associate Professors

Jorge R. Barrio, Ph.D.

Don H. Catlin, M.D.

### Assistant Professors

Sherrel G. Howard-Butcher, Ph.D.

R. Craig Kammerer, Ph.D.

### Lecturer

Joseph H. Beckerman, Pharm.D.

### Adjunct and Visiting Professors

Il Jin Bak, Ph.D., D.D.S., *Adjunct*

Yi-Han Chang, Ph.D., *Adjunct*

Louis Levy, Ph.D., *Adjunct*

Roger W. Russell, Ph.D., *Visiting*

### Adjunct Associate Professors

M. David Fairchild, Ph.D.

Larry A. Wheeler, Ph.D.

## Scope and Objectives

The Department of Pharmacology offers instruction for undergraduate, graduate, medical, and dental students. It includes a systematic treatment of the effects of drugs in normal and pathological states, the mechanisms by which these effects are exerted, and the factors influencing their absorption, distribution, and biological disposition. Consideration is also given to the medical and social problems created by the increasing use of drugs by both the medical profession and the public.

Although the department offers only graduate degrees, upper division undergraduate courses are offered with enrollment restrictions as indicated in the course descriptions.

## Master of Science Degree

The Pharmacology Department offers the Ph.D. degree, and students may obtain the M.S. degree; however, the department normally does not admit candidates for the M.S. degree.

## Ph.D. Degree

### Admission

In addition to meeting University requirements for graduate admission, you must have received a bachelor's degree in a biological or physical science or in the premedical curriculum.

In suitable cases, students who have course deficiencies may be admitted to graduate standing, but any deficiencies will have to be removed within a specified time. Graduate Record Examination scores, Test of English as a Foreign Language (TOEFL) scores for foreign students, and three letters of recommendation are required.

Prospective students may write for a departmental brochure to the Graduate Student Office, Department of Pharmacology, UCLA School of Medicine, Los Angeles, CA 90024.

### Major Fields or Subdisciplines

Cardiovascular pharmacology; chemical pharmacology; clinical pharmacology; immunopharmacology; neuroendocrine pharmacology; neuropharmacology; psychopharmacology.

### Course Requirements

*Required:* Pharmacology 200 (three quarters), 201, 202A-202B, 212A-212B, 234A-234B-234C, 237A-237B-237C, 241, 251 (must be taken every quarter), 291 (three quarters or alternative courses); Biological Chemistry 101A-101B-101C, or 101C and 201A-201B; Physiology 101, 102, 103A-103B (Anatomy 103A-103B); one course in biostatistics.

All coursework should be completed by the end of the sixth quarter and prior to taking the departmental comprehensive examinations.

The Pharmacology Department provides a system of laboratory rotations (course 200) in order to familiarize students with a variety of pharmacological research areas and techniques. During the first six quarters in the department, you will participate in projects of your choosing. If possible, two of these will be during the regular academic year and the third during the summer. You will also become familiar with the literature relevant to the various research projects and thus establish a basis for the selection of your own research area. If you have already chosen a research area at the time you enter the department, you may benefit by working in the related laboratory during the previous summer. This would provide an uninterrupted period of over two months to work on a research project.

As part of course 200 you must submit a report of your activities in the various research groups by the end of the quarter. The report should include the nature of the project, how you participated, the results obtained, and a critical evaluation of the project.

## Teaching Experience

Seminar presentations are required of all students in the graduate program.

## Qualifying Examinations

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.

After completing the first two years of study, you will be required to take a departmental comprehensive examination consisting of a written part and an oral part. You will then be recommended for continuation toward the Ph.D. degree, for further remedial study, or for termination. Questions are intended to test for a rational, analytical approach to problem solving and for ability to integrate material learned in different courses. You will be expected to know basic principles of pharmacology and the status of topics of current interest in pharmacology.

After passing the departmental comprehensive examination, you must take the University Oral Qualifying Examination within 18 months. This examination is administered by the doctoral guidance committee. Most questions will concentrate on the background literature, experimental methods, and implications of your field of interest and dissertation project. When you pass this examination, you are eligible to petition the Graduate Division for advancement to Ph.D. candidacy.

If you fail any one of the above required examinations, you may be reexamined at a later date determined by the guidance committee.

## Final Oral Examination

A final oral examination is administered after submission of the dissertation.

## Cooperative Degree Program

The Department of Pharmacology offers an M.D./Ph.D. program concurrently with the UCLA School of Medicine. Candidates must be accepted by the School of Medicine Admissions Office in order to qualify.

## Upper Division Courses

**101A-101B-101C. Elements of Pharmacology (3 units, 2 units, 3 units).** Prerequisite: dental student standing or consent of instructor. Required of junior dental students. A general consideration of the modes of action and the pharmacological and toxicological effect of drugs, with a more detailed study of those agents used in clinical dentistry and the principles governing their use. Mr. Lomax in charge

**110. Drugs: Mechanisms, Uses, and Misuse.** Lecture, four hours (seven weeks); discussion, four hours (three weeks). Prerequisites: Biology 5, 6, 7, Chemistry 21, 23, 25, or equivalent. An introduction to pharmacology for undergraduate students, emphasizing the principles underlying the mechanism of action of drugs, their development, control, rational use, and misuse. Mr. Jenden

**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 appropriate training of each student.

## 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 the end of each quarter students submit to their supervisor a report covering the research performed. Pharmacology graduate students must take this course three times during their first two years in residence.

**201. Principles of Pharmacology.** Prerequisites: mammalian physiology and biochemistry. A systematic consideration of the principles governing the interaction between drugs and biological systems and of the principal groups of drugs used in therapeutics. Particular attention to the modes of action, pharmacokinetics, and disposition to provide a scientific basis for their rational use in medicine.

Mr. Thompson in charge

**202A-202B. Clinical Pharmacology.** A series of lectures and case presentations designed to illustrate the principles of pharmacology in a clinical context, and the solution of problems of practical therapeutics by reference to pharmacokinetics, mechanisms of action, and disposition of drugs.

Mr. Catlin in charge

**212A-212B. Graduate Commentary: Clinical Pharmacology (2 units each).** Prerequisites: mammalian physiology and biochemistry. A supplementation of topics covered in courses 202A and 202B. Primarily for graduate students.

Mr. Catlin

**234A-234B-234C. Experimental Methods in Pharmacology (2 units each).** Prerequisite: consent of instructor. A survey of experimental methods and instrumentation used in the analysis, identification, and study of mechanisms of action of pharmacologically active compounds.

Mr. Chang, Mr. George, Mr. Kammerer

**236. Neuropharmacology.** Prerequisite: neurophysiology. Advanced neuropharmacology, including actions and modes of action of drugs acting on the central nervous system, interactions between drugs and nervous tissue, movements of drugs through the blood brain barrier, and distribution to the central nervous system; problems of central transmission.

Mr. George

**237A-237B-237C. Neurotransmission.** Prerequisites: courses 234A-234B-234C, 241, consent of instructor. A detailed examination of neurochemical transmission, dealing in particular with the cholinergic and adrenergic transmission mechanisms and pharmacological agents that affect them. The evidence for mechanisms involving other possible transmitters is also critically examined.

Mr. Cho, Mr. George, Mr. Jenden, Mr. Olsen

**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 the 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 the state of present knowledge, and to application of the knowledge in regulating risks of both prenatal and postnatal exposure. Particular emphasis on the relevance of this knowledge to human behavior.

Mr. Russell

**M239. Psychopharmacology.** (Same as Psychiatry M239.) Prerequisite: consent of instructor. A presentation of the effects of drugs on behavior, with special attention to drugs used in psychiatry and drug seeking behavior. Physiological and biochemical mechanisms underlying such actions are analyzed. Reports on relevant current research are made. Mr. Jarvik

**241. Introduction to Chemical Pharmacology.** Prerequisite: organic and biological chemistry. Introduction to general principles of pharmacology. The role of chemical properties of drugs in their distribution, metabolism, and excretion.

Mr. Cho

**251. Seminar in Pharmacology (2 units).** Seminars presented by students, faculty, and guest lecturers on a variety of topics.

Ms. Howard

**253. Seminar in Environmental Toxicology (2 units).** Prerequisite: consent of instructor. Oral reports and discussions of current research on chemical pollutants in the environment, their effects on biological systems, and the mechanism of these effects.

Mr. Jenden

**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.

Mr. Taylor

**M258. Pathologic Changes in Toxicology.** (Same as Pathology M258.) Designed to give students experience in learning the 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 are covered.

Ms. Berliner

**261. Introduction to Clinical Pharmacology (2 units).** Prerequisite: consent of instructor. Lectures, case presentations, and discussions designed to acquaint graduate students with the 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).**

## Physiology

53-170 Center for Health Sciences,  
825-6717

### Professors

Francisco J. Bezanilla, Ph.D. (Neuroscience)

Allan J. Brady, Ph.D.

Jennifer S. Buchwald, Ph.D.

Michael H. Chase, Ph.D., in Residence

Sergio Ciani, Ph.D.

Jared M. Diamond, Ph.D.

George Eisenman, M.D.

Alan D. Grinnell, Ph.D.  
Susumu Hagiwara, M.D., Ph.D. (Eleanor I. Leslie  
Professor of Neuroscience)

Earl Homsher, Ph.D.

Douglas Junge, Ph.D.

Glenn A. Langer, M.D. (Castera Professor of  
Cardiology)

Wilfried F.H.M. Mommaerts, Ph.D., Chair

Gordon Ross, M.D.

Eduardo H. Rubinstein, M.D., Ph.D.

George Sachs, D.Sc. (Leon J. Tiber, M.D. and David  
S. Alpert, M.D. Professor of Medicine)

Maria W. Seraydarian, Ph.D. (Nursing)

Ralph R. Sonnenschein, M.D., Ph.D.

John McD. Tormey, M.D.

Bernice M. Wenzel, Ph.D.

Brian Whipp, Ph.D.  
 Ernest M. Wright, D.Sc.  
 Mary A.B. Brazier, D.Sc., *Emeritus*, in *Residence*  
 Donald B. Lindsley, Ph.D., *Emeritus*

### Associate Professors

Thomas Berglindh, Ph.D., in *Residence*  
 Joy Frank, Ph.D., in *Residence*  
 Richard Horn, Ph.D., in *Residence*  
 Sally Krasne, Ph.D.  
 Michael S. Letinsky, Ph.D.  
 Kenneth D. Philipson, Ph.D., in *Residence*  
 Paul Quinton, Ph.D.  
 Julio Vergara, Ph.D.

### Lecturer

Jesse O. Washington, D.V.M.

### Adjunct Associate Professor

Oscar Scremin, M.D.

## Scope and Objectives

Physiology is the science of the functional activities of the human body. This covers a wide range, on the one hand involving observations on human organisms and patients, on the other hand 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 1982 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 concurrent M.D./Ph.D. programs.

## Ph.D. Degree

### Admission

Candidates for admission to graduate standing in the Department of Physiology are expected to pursue the Ph.D. degree. The department does not admit candidates for the M.S. degree. Ph.D. students must conform to the general admission requirements set 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, you should have completed courses in mathematics through calculus and

differential equations (equivalent to Mathematics 31A, 31B, 33A); physics (12 quarter units); chemistry (16 quarter units, including quantitative analysis, physical and organic chemistry); biology or zoology (16 quarter units, including comparative vertebrate anatomy).

In certain cases, at the discretion of the department, students lacking some of the preparation but having a strong background in areas pertinent to physiology may be admitted to graduate standing, provided that deficiencies are made up. Successful completion of the first-year curriculum requires knowledge of physical chemistry (at least equivalent to Chemistry 110A and 156) and differential equations (equivalent to Mathematics 33A). It is strongly recommended that these or equivalent courses be taken prior to admission. If not, these deficiencies must be removed within a specified time after admission, which would likely extend the first-year curriculum into the second year. Students may also be admitted on the recommendation and sponsorship of staff members subject to admission committee approval.

The Graduate Record Examination Aptitude Test is required as well as the Advanced Test in Biology or in your major field. MCAT scores will be accepted in lieu of the GRE. Three letters of recommendation are required and should be addressed to the Director of Graduate Studies. Completion of a master's program is not required.

An application packet and/or departmental brochure is available from the Graduate Student Office, Department of Physiology, UCLA School of Medicine, Los Angeles, CA 90024.

### Major Fields or Subdisciplines

Cellular electrophysiology; membrane transport; excitation, contraction, energetics, and protein chemistry of muscle; fundamental neurophysiology; cardiovascular, respiratory, and gastrointestinal physiology.

### Course Requirements

The graduate training program consists of two levels of basic subject matter. One level is comprehensive but qualitative rather than extensively analytical. The other level involves in-depth study which is rigorous and quantitative. First-year students have the option of taking courses at either level but will be required to take at least two areas of in-depth study.

### Qualifying Examinations

A departmental written qualifying examination is usually taken at the end of the first year of study, although this requirement may be waived provided other methods of performance evaluation indicate satisfactory progress. Recommendations following the examination are based on the total and specific

areas of competence revealed by the examination, performance in coursework during the year, and recommendations of staff with whom you have had close association. Marginal performance in all areas with excellence in none is not considered acceptable.

Following successful completion of the departmental written examination, you must select a sponsor who will act as chair of your doctoral committee and direct your thesis research project. The committee members conduct the University Oral Qualifying Examination to establish that you are capable of conducting a productive research project. At this point in your training, you normally will have completed all formal coursework, will have passed the departmental written examination, and will have devoted approximately a year to a research project. After successful completion of the oral examination, you are advanced to candidacy.

### Final Oral Examination

The final oral examination is optional with the doctoral committee.

## Upper Division Courses

**100. Elements of Human Physiology (6 units).** Prerequisite: dental student standing or consent of instructor. Required of first-year dental students. Lectures, laboratories, and demonstration/discussions concerning functional activities of the living body in terms of both cellular and systemic functions. Examples are presented, where possible, on the basis of information relevant to oral function.

Mr. Homsher and the Staff (F)

**101. Neuromuscular and Cardiovascular Physiology (7 units).** Prerequisites: basic courses in chemistry, physics, and biology, at least one year each; organic chemistry; histology; gross anatomy, human or comparative. Primarily for first-year medical students, but open to other students by consent of instructor. Lectures, laboratory, and conferences. An analysis of the electrical properties of muscle and nerve, the contractility of muscle and the heart, and the cardiovascular system and its regulation.

Ms. Wenzel (W)

**102. Renal, Respiratory, and Gastrointestinal Physiology (6 units).** Prerequisites: same as for course 101. Primarily for first-year medical students, but open to other students by consent of instructor. Lectures, laboratory, and conferences. A continuation of course 101, dealing with respiration, and the distribution of water, electrolytes and metabolites by the renal and gastrointestinal systems, and the special physiology of certain organs.

Mr. Tormey, Ms. Wenzel (Sp)

**103A-103B. Basic Neurology (1 unit, 3 units).** Lecture/laboratory, two four-hour sessions and one three-hour session (Winter — last three weeks); two two-hour sessions and two three-hour sessions (Spring). Prerequisite: medical student standing or consent of instructor. Corequisites: Anatomy 103A-103B. Lectures, conferences, demonstrations, and laboratory procedures necessary for an understanding of the functions of the human nervous system. In Progress grading.

Mr. Chase and the Staff (W,Sp)

**M105. Human Physiology.** (Formerly numbered 105N.) (Same as Nursing M105.) Lecture, four hours; discussion, one hour. Prerequisite: nursing student standing or consent of instructor. Required of third-year nursing students. Lecture and discussion emphasizing a correlative approach to anatomy and physiology of the human body.

Ms. Seraydarian



**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 appropriate training of each student.

## Graduate Courses

**200. Transport across Biological Membranes.** Prerequisite: consent of instructor. An in-depth study of transport ions, nonelectrolytes, and water across plasma membranes of single cells and epithelia. Lectures include such topics as membrane structure, the passive permeability of membranes to ions and nonelectrolytes, active transport of sugars and amino acids, active ion transport, and the mechanisms of water transport. Experimental work involves the transport of ions across single cell membranes and epithelia using radioactive tracer and electrophysiological techniques. Mr. Wright

**202. Permeability of Biological Membranes to Ions (6 units).** Prerequisites: Chemistry 110A and 110B, or equivalent, and consent of instructor. Topics include ion permeation mechanisms, ion distribution, and physical basis of ion discrimination across cell membranes. Mr. Diamond

**M203. Oral Physiology.** (Same as Oral Biology M205.) Lecture, one hour; discussion, one hour. The organ-level and cellular physiology of the following systems is discussed, in a somewhat flexible framework: (1) salivary glands, including the mechanisms of secretion, abnormalities such as Mikulicz-Sjogren syndrome, and effects on the dentition; (2) dental pulp: development, normal physiology, and reparative mechanisms; (3) organization of sensory systems, receptors, pathways, and central projections; (4) dental pain mechanisms, hydrodynamic theory, and electrical recordings from dentin; (5) taste receptors: mechanisms of perception of four basic tastes, alterations of taste caused by drugs, diseases, and aging; (6) oral touch and temperature receptors: comparison with similar systems in the skin, assessment of sensory dysfunction; (7) speech: phonation, resonance, and articulation in speech production, normal time-course of development of various sounds in children. Classes are supplemented with audiovisual materials and many references from the literature. Mr. Junge (F)

**205. Physical Chemistry of Membrane and Cellular Systems.** Prerequisite: consent of instructor. Survey of the principles of equilibrium and nonequilibrium thermodynamics, electrostatics and fluid mechanics and their application to problems of electrochemistry, ionic process in solutions, electrode kinetics, and transport in membranes. Mr. Ciani

**207. Neurophysiology.** Prerequisite: consent of instructor. Seminar and laboratory course designed to acquaint the student with behavioral techniques and concepts relevant to research problems encountered in modern neurophysiology, and to consider means of integrating them with neurophysiological methods. Ms. Wengel

**208. Biophysics of Membrane Transport (6 units).** Prerequisites: physical chemistry (equivalent to course 205 or Chemistry 110A, 110B), differential equations (equivalent to Mathematics 33A, which may be taken concurrently). Studies of transport mechanisms in simple model membrane systems are used as a basis for understanding mechanisms of ion and nonelectrolyte permeation, excitability, and gating phenomena in biological membranes. The significance of such physical variables as membrane surface charges, surface dipoles, dielectric constant, and viscosity for transport phenomena are discussed in detail. Mr. Ciani, Ms. Krasne

**212A-212B-212C. Critical Topics in Physiology (1 to 8 units each).** Prerequisite: consent of instructor. Advanced treatment of critical topics in physiology by staff and guest lecturers for graduate and postdoctoral students in the biomedical sciences.

**213. Methods in Cell Physiology (6 units).** Prerequisite: consent of instructor. The lectures and laboratory deal with the integrated circuits and other solid-state devices employed in modern instruments, so that students learn to design and build many of the simpler circuits often required in their research. Emphasis on the particular circuits used in electrophysiology, RC analysis, and an introduction to cable theory. Mr. Bezanilla, Mr. Vergara

**214. Cell Physiology: Transport and Electrochemical Properties (2 to 6 units).** Prerequisite: course 213 or consent of instructor. Introductory concepts of transport across cell membranes, models of permeation mechanisms, linear cable properties of cells, and nonlinear conductance changes in excitation and impulse conduction.

**215. Cell Physiology: Cellular Interaction (6 units).** Prerequisites: courses 213, 214. Synaptic transmission mechanisms and potential generation in the special senses receptors.

**216. Cellular Electrophysiology (6 units).** Prerequisites: basic knowledge of the physics of electricity, integral and differential calculus, and biology (equivalent to Biology 5), and consent of instructor. The course presents basic concepts of membrane structure, passive cable properties, nonlinear properties of excitation and conduction, and biophysics of transport phenomena. This material is presented in semi-quantitative terms. Rigorous in-depth coverage is offered in course 213.

**217A. A Survey of Transport Processes in Biological Membranes.** Prerequisite: consent of instructor. An introduction to the transport ions, nonelectrolytes, and water across plasma membranes of single cells and epithelia. Lectures include such topics as membrane structure, the passive permeability of membranes to ions and nonelectrolytes, active transport of sugars and amino acids, active ion transport, and the mechanisms of water transport.

**217B. Cellular Neurophysiology.** Prerequisite: course 213 or 216 or consent of instructor. Structure and function of synaptic transmission, neurotransmitters, excitation/inhibition special sensory receptors.

**218A. Integrative Neurophysiology.** Prerequisite: course 217B or consent of instructor. Structure and function of CNS neurons, structure and function of visual, cerebellum, and other CNS systems. Structure and function of autonomic nervous system.

**218B. Physiology of Muscle.** Prerequisite: course 216 or consent of instructor. Ultrastructure of muscle. Excitation, excitation-contraction coupling, calcium regulation of contraction, myofibril interactions, energetics mechanics, and chemical kinetics of contraction in vertebrate muscle.

**221A-221B-221C. Concepts of Excitation and Contraction in Muscle (2 to 6 units each).** Prerequisite: consent of instructor. In-depth study of muscle physiology, with material derived from a critical review of classical and recently published research papers. Content varies according to the special interests of the students.

**222. Graduate Commentary: Renal, Respiratory, and Gastrointestinal Physiology (2 units).** Prerequisite: course 101. An advanced supplementation for graduate students of the topics presented in course 102.

**223. Graduate Commentary: Physiology of the Nervous System (2 units).** Prerequisites: basic courses in chemistry, physics, and biology, at least one year each; organic chemistry; histology; gross anatomy, human or comparative; consent of instructor. An advanced supplementation for graduate students of the topics presented in basic neurology. Ms. Buchwald

**225. Ionic Selectivity: The Role of Kinetic and Equilibrium Processes in Ion Permeation through Channels.** Lecture, two hours; reading period, ten hours. Prerequisites: course 208 (unless waived), consent of instructor. Covers the "state of the art" for characterizing the molecular details of ion permeation in model peptide channels (e.g., gramicidin) and biological channels (e.g., acetylcholine receptor channel, K channel, and Na channel), particularly as these can be inferred from electrical measurements. Molecular aspects of ion permeation are emphasized. Mr. Eisenman

**227. Theoretical Problems in Membrane Permeation (2 units).** Prerequisite: consent of instructor. Tutorial directed to specific theoretical problems of interest to the student. Mr. Ciani

**228. Epithelia: Structure and Function (2 units).** Prerequisite: consent of instructor. Lectures and seminars on the physiology of epithelia cells, with particular emphasis on membrane transport. S/U grading. Mr. Wright (W)

**229. Research Topics in Neurobiology (2 units).** Prerequisite: consent of instructor. Discussion of current literature covering research problems in neurobiology. S/U or letter grading. Mr. Letinsky

**230A-230B-230C. Selected Topics in Organ Physiology (2 to 8 units each).** Prerequisite: consent of instructor. Macroscopic, microscopic, and ultrastructural correlates of tissue and organ function. Advanced consideration of special topics in the physiology of the cardiovascular and gastrointestinal systems, as well as the respiratory, renal, and central nervous systems. Mr. Brady and the Staff

**231A-231B-231C. Cardiovascular and Respiratory Physiology (2 to 6 units each).** Prerequisite: consent of instructor. In-depth study of the cardiovascular and respiratory systems. **231A** emphasizes respiratory mechanisms and control. **231B** and **231C** include the function and control of the cardiovascular system and its relation to the mechanics of respiration and cellular gas exchange. Study material consists of critical reviews and discussion of selected articles in journals.

**M235. Gut and Brain Peptides (2 units).** (Same as Anatomy M235 and Neuroscience M235.) Prerequisite: consent of instructor. Current knowledge of gut and brain peptides is presented by surveying their chemistry, anatomy, and physiology. Experimental approaches used to study biologically active peptides are discussed. In addition, current information about each of the major gut and brain peptides is reviewed. S/U or letter grading.

Mr. Brecha, Mr. Reeve, Ms. Tache (W)

**245. Stochastic Analysis of Channel Gating.** Prerequisite: consent of instructor. Review of probability theory; combinatorial analysis; introduction to theory of stochastic processes; renewal theory; discrete and continuous-time Markov processes; analysis of kinetic models of channel gating; applications for single channel and "noise" measurements. S/U or letter grading. Mr. Horn

**250A-250B-250C. Techniques in Biological Research (1 unit each).** Discussion of techniques of interest to students in the biological sciences. S/U grading.

**251A-251B-251C. Seminar in Physiology (1 unit each).** Prerequisite: consent of instructor. Review and discussion of current physiological literature, research in progress, and special topics.

**M252A-M252B. Seminar in Behavioral Biology.** (Same as Anthropology M228A-M228B, Biology M252A-M252B, Education M229A-M229B, Psychiatry M291A-M291B, and Psychology M230A-M230B.) Discussion, six hours. Prerequisite: consent of instructor. Basic seminar for graduates interested in behavioral biology. An interdisciplinary course dealing with behavioral research in anthropology, biology, psychology, and the medical sciences. Proximate causation, development, and evolution in animal behavior. Physiology and the organization of behavior. Vertebrate social organization. Animal communication. The application of natural selection theory to human social behavior. In Progress grading.

**253A-253B-253C. Current Topics in Neurobiology and Biophysics (2 units each).** Lecture, one hour; discussion, one hour. Prerequisite: consent of instructor. The courses consist of a weekly lecture by members of the faculty and visiting scientists, followed by a scheduled discussion period for students. The subject matter covers all aspects of cellular neurobiology, with emphasis on quantitative and biophysical approaches. Most talks deal with original research, placed in the context of overall developments in the field. Some talks are reviews of recent interesting literature, with posted references for student preparation. S/U grading.

**260. The Use of Laboratory Animals in Research.** (Formerly numbered 301.) Prerequisite: consent of instructor. An introductory course for graduate students in the medical and biological sciences, covering principles and practical problems in the handling and use of common laboratory animal species.

Mr. Washington

**297. Developmental Neurobiology.** Lecture, two hours; discussion, two hours. Prerequisites: Biology 171 or equivalent and consent of instructor. The course focuses on processes governing the production and differentiation of neurones, synaptogenesis, and specificity and plasticity in neuronal and nerve-muscle connections.

Mr. Arnold, Mr. Grinnell

**596. Directed Individual Study or Research (2 to 12 units).** Prerequisite: consent of instructor.

**597. Preparation for Ph.D. Qualifying Examination or M.S. Comprehensive Examination (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.

Jean S. deVellis, Ph.D., in Residence (Biobehavioral Sciences)

Wilfred J. Dixon, Ph.D. (Biobehavioral Sciences)

Robert B. Edgerton, Ph.D., in Residence (Biobehavioral Sciences)

Bernice T. Eiduson, Ph.D., in Residence (Medical Psychology)

Samuel Eiduson, Ph.D., in Residence (Biobehavioral Sciences)

Barbara Fish, M.D.

Arvan L. Fluharty, Ph.D., in Residence (Biobehavioral Sciences)

Steven R. Forness, Ed.D., in Residence (Biobehavioral Sciences)

Daniel X. Freedman, M.D. (Judson Braun Professor of Biological Psychiatry)

Joaquin M. Fuster, M.D., in Residence

Rosslyn Gaines, Ph.D., in Residence (Medical Psychology)

Gary C. Galbraith, Ph.D., in Residence (Medical Psychology)

Ronald G. Gallimore, Ph.D., in Residence (Biobehavioral Sciences)

John Garcia, Ph.D. (Biobehavioral Sciences)

Walter R. Goldschmidt, Ph.D. (Biobehavioral Sciences)

Milton Greenblatt, M.D., Executive Vice Chair

Donald Guthrie, Ph.D., in Residence (Biobehavioral Sciences)

Angelos E. Halaris, M.D., in Residence

John Hanley, M.D., in Residence

Frank W. Hayes, M.D., in Residence

Frank M. Hewett, Ph.D. (Biobehavioral Sciences)

Chester D. Hull, Ph.D., in Residence (Biobehavioral Sciences)

Lissy F. Jarvik, M.D., Ph.D.

Murray E. Jarvik, M.D., Ph.D.

Harry J. Jerison, Ph.D., in Residence (Biobehavioral Sciences)

John G. Kennedy, Ph.D., in Residence (Biobehavioral Sciences)

Arthur Kling, M.D., in Residence

Lewis L. Langness, Ph.D., in Residence (Biobehavioral Sciences)

Henry Lesse, M.D., in Residence

Robert P. Liberman, M.D., in Residence

James T. Marsh, Ph.D. (Medical Psychology)

David S. Maxwell, Ph.D. (Biobehavioral Sciences)

Philip R. A. May, M.D. (Della Martin Professor of Psychiatry)

Michael T. McGuire, M.D.

Ivan N. Mensh, Ph.D. (Medical Psychology)

Milton H. Miller, M.D.

Jim Mintz, Ph.D., in Residence (Medical Psychology)

Kazuo Nihira, Ph.D., in Residence (Medical Psychology)

Ernest P. Noble, M.D., Ph.D. (Thomas P. and Katherine K. Pike Professor of Alcohol Studies)

William H. Oldendorf, M.D., in Residence

Edward M. Ornitz, M.D., in Residence

Alfonso Paredes, M.D., in Residence

Robert O. Pasnau, M.D., in Residence

Morris J. Paulson, Ph.D., in Residence (Medical Psychology)

Dennis D. Pointer, Ph.D. (Biobehavioral Sciences)

George J. Popjak, M.D.

Douglass R. Price-Williams, Ph.D., in Residence (Biobehavioral Sciences)

Fredrick C. Redlich, M.D., in Residence

Edward R. Ritvo, M.D., in Residence

Alexander C. Rosen, Ph.D., in Residence (Medical Psychology)

Robert T. Rubin, M.D., in Residence

Paul Satz, Ph.D., in Residence (Neuropsychology)

Arnold B. Scheibel, M.D.

Eustace A. Serafetinides, M.D., Ph.D., in Residence

David Shapiro, Ph.D. (Medical Psychology)

Edwin S. Shneidman, Ph.D., in Residence (Thanatology)

Arthur B. Silverstein, Ph.D., in Residence (Medical Psychology)

James Q. Simmons, M.D., in Residence

S. Stefan Soltysik, M.D., Ph.D., in Residence (Neurophysiology)

Robert S. Sparkes, M.D.

M. Anne Spence, Ph.D., in Residence (Biobehavioral Sciences)

Maurice B. Sterman, Ph.D., in Residence (Biobehavioral Sciences)

Robert J. Stoller, M.D.

Peter E. Tangway, M.D., in Residence

George Tarjan, M.D.

Claudewell Thomas, M.D., in Residence

J. Thomas Ungerleider, M.D., in Residence

Jaime R. Villablanca, M.D., in Residence (Neurophysiology)

Richard D. Walter, M.D.

Herbert Weiner, M.D., in Residence

Bernice M. Wenzel, Ph.D. (Biobehavioral Sciences)

Louis Jolyon West, M.D., Chair

Charles D. Woody, M.D., in Residence (Biobehavioral Sciences)

Joel Yager, M.D., in Residence

Joe Yamamoto, M.D., in Residence

Arthur Yuwiler, Ph.D., in Residence (Biobehavioral Sciences)

Norman Q. Brill, M.D., Emeritus

W. Jann Brown, M.D., Emeritus

Horace W. Magoun, Ph.D., Emeritus (Biobehavioral Sciences)

Frank F. Tallman, M.D., Emeritus

Henry H. Work, M.D., Emeritus

## Associate Professors

Anthony M. Adinolfi, Ph.D. (Biobehavioral Sciences)

Robert F. Asarnow, Ph.D., in Residence (Medical Psychology)

Javier I. Escobar, M.D., in Residence

Frederick D. Frankel, Ph.D., in Residence (Medical Psychology)

Betty Jo Freeman, Ph.D., in Residence (Medical Psychology)

Steve J. Funderburk, M.D., in Residence

Edward Geller, Ph.D., in Residence (Biobehavioral Sciences)

Kay R. Jamison, Ph.D., in Residence (Medical Psychology)

Joseph R. Jedrychowski, D.D.S. (Biobehavioral Sciences)

Marvin Karno, M.D., in Residence

Keith T. Kernan, Ph.D., in Residence (Biobehavioral Sciences)

Michael S. Levine, Ph.D., in Residence (Neuroanatomy)

Mark J. Mills, J.D., M.D., in Residence

Gloria J. Powell, M.D., in Residence

Warren R. Procci, M.D., in Residence

Marian D. Sigman, Ph.D., in Residence (Medical Psychology)

Michael A. Strober, Ph.D., in Residence (Medical Psychology)

Alexander J. Tymchuk, Ph.D., in Residence (Medical Psychology)

Thomas S. Weisner, Ph.D., in Residence (Biobehavioral Sciences)

David K. Wellisch, Ph.D., in Residence (Medical Psychology)

Gail E. Wyatt, Ph.D., in Residence (Medical Psychology)

## Assistant Professors

Joan R. Asarnow, Ph.D., in Residence (Medical Psychology)

Lewis R. Baxter, M.D., in Residence

Carole Browner, Ph.D., in Residence

Sherrel G. Butcher, Ph.D. (Biobehavioral Sciences)

Robert P. Diamond, M.D., in Residence

Stephen E. Dubin, D.O., in Residence

Fawzy I. Fawzy, M.D., in Residence

Thomas R. Garrick, M.D., in Residence

David A. Gorelick, M.D., in Residence

Eric Halgren, Ph.D., in Residence (Medical Psychology)

# Psychiatry and Biobehavioral Sciences

B7-349 NPI, 825-0770

## Professors

Ransom J. Arthur, M.D., in Residence

D. Frank Benson, M.D.

T. George Bidder, M.D., in Residence

Nicholas G. Blurton Jones, D.Phil. (Behavioral Sciences)

Nathaniel A. Buchwald, Ph.D., in Residence (Behavioral Sciences)

Dennis P. Cantwell, M.D. (Joseph Campbell Professor of Child Psychiatry)

Stephen D. Cederbaum, M.D., in Residence

Ching-piao Chien, M.D., in Residence

Kenneth M. Colby, M.D.

Barbara F. Crandall, M.D., in Residence

Joseph Hullett, M.D., in *Residence*  
 Asenath LaRue, Ph.D., in *Residence (Biobehavioral Sciences)*  
 Ira M. Lesser, M.D., in *Residence*  
 Keh-Ming Lin, M.D., in *Residence*  
 Fred Loya, Ph.D., in *Residence (Medical Psychology)*  
 Stephen R. Marder, M.D., in *Residence*  
 Rama K. Nadella, M.D., in *Residence*  
 Robert E. Neshkes, M.D., in *Residence*  
 Keith H. Neuchterlein, Ph.D., in *Residence (Medical Psychology)*  
 Charles E. Olmstead, Ph.D., in *Residence (Physiological Psychology)*  
 Robert S. Pynoos, M.D., in *Residence*  
 Andrew T. Russell, M.D., in *Residence*  
 Glenn W. Schwacz, M.D., in *Residence*  
 Jerome M. Siegel, Ph.D., in *Residence (Biobehavioral Sciences)*  
 Esther Sinclair, Ph.D., in *Residence (Biobehavioral Sciences)*  
 Stanley E. Slivkin, M.D., in *Residence*  
 Gary W. Small, M.D., in *Residence*  
 James E. Spar, M.D., in *Residence*  
 Gordon D. Strauss, M.D., in *Residence*  
 Kenneth B. Wells, M.D., in *Residence*  
 Jeffery N. Wilkins, M.D., in *Residence*  
 Deane L. Wolcott, M.D., in *Residence*

#### Adjunct and Visiting Professors

Jambur V. Ananth, M.D., *Adjunct*  
 Alexander Comfort, M.D., D.Sc., *Adjunct*  
 Robert H. Coombs, Ph.D., *Adjunct (Biobehavioral Sciences)*  
 Norman Cousins, B.A., *Adjunct (Medical Humanities)*  
 Joseph W. Cullen, Ph.D., *Adjunct (Biobehavioral Sciences)*  
 Calvin J. Frederick, Ph.D., *Adjunct (Medical Psychology)*  
 Roderic Gorney, M.D., *Adjunct*  
 Christoph M. Heinicke, Ph.D., *Adjunct (Medical Psychology)*  
 Jean C. Holroyd, Ph.D., *Adjunct (Medical Psychology)*  
 Hayato Kihara, Ph.D., *Adjunct (Biobehavioral Sciences)*  
 Edward H. Liston, M.D., *Adjunct*  
 Judd Marmor, M.D., *Adjunct*  
 James G. Miller, M.D., Ph.D., *Adjunct*  
 Armando Morales, D.S.W., *Adjunct (Social Work)*  
 Olga J. Petre-Quadens, M.D., *Visiting*  
 Michel Philippart, M.D., *Adjunct*  
 Richard J. Schain, M.D., *Adjunct (Pediatrics)*  
 Donald A. Schwartz, M.D., *Adjunct*  
 Iradj Siassi, M.D., *Adjunct*  
 Paul F. Slawson, M.D., *Adjunct*  
 Manuel Straker, M.D., *Adjunct*  
 Theodore Van Putten, M.D., *Adjunct*  
 Dora B. Weiner, Ph.D., *Adjunct (Medical Humanities)*  
 Ralph E. Worden, M.D., *Adjunct*

#### Adjunct Associate Professors

Christiane A. M. Baltaxe, Ph.D. (*Biobehavioral Sciences*)  
 Linda J. Beckman, Ph.D. (*Biobehavioral Sciences*)  
 Annette M. Brodsky, Ph.D. (*Medical Psychology*)  
 Warren R. Brown, Ph.D. (*Biobehavioral Sciences*)  
 V. Charles Charuvastra, M.D.  
 Milton S. Davis, Ph.D., M.D.  
 Michael E. Dawson, Ph.D. (*Biobehavioral Sciences*)  
 David W. Foy, Ph.D. (*Medical Psychology*)  
 Irene T. Goldenberg, Ed.D. (*Medical Psychology*)  
 Frederick Gottlieb, M.D.  
 Victor Haddox, M.D., J.D.  
 Donald F. Haggerty, Ph.D. (*Biobehavioral Sciences*)  
 Richard L. Heinrich, M.D.  
 Lewis M. King, Ph.D. (*Biobehavioral Sciences*)  
 Melvin R. Lansky, M.D.  
 Gayle G. Marsh, Ph.D. (*Medical Psychology*)  
 Charles P. McCreary, Ph.D. (*Medical Psychology*)  
 Gerald J. McKenna, M.D.

Paul R. Munford, Ph.D. (*Medical Psychology*)  
 Kiki V. Roe, Ph.D. (*Medical Psychology*)  
 Shih Y. Tsai, M.D.  
 Jimmie L. Turner, Ph.D. (*Biobehavioral Sciences*)  
 Mario Valente, M.D.  
 William J. Winslade, Ph.D., J.D. (*Medical Psychology*)

#### Adjunct Assistant Professors

Luis J. Fitten, M.D.  
 Paul Grossman, M.D.  
 Ramzi Z. Kiriakos, M.D.  
 Barringer D. Marshall, M.D.  
 Timothy B. McCaffrey, M.D.  
 Leonora K. Petty, M.D.  
 Rebecca H. Rausch, Ph.D. (*Medical Psychology*)  
 Anthony E. Reading, Ph.D. (*Medical Psychology*)  
 Rochelle Reno, Ph.D.  
 Harvey A. Sternbach, M.D.

#### Adjunct and Visiting Lecturers

Nancy H. Allen, M.P.H., *Adjunct (Biobehavioral Sciences)*  
 Linda A. Andron, M.S.W., *Adjunct (Social Work)*  
 J. Wesson Ashford, M.D., *Adjunct*  
 Marion T. Baer, Ph.D., *Visiting (Nutrition)*  
 S. Delores Barnes, D.S.W., *Adjunct (Social Work)*  
 Barbara A. Bass, M.S.W., *Adjunct (Social Work)*  
 Diane J. Bass, M.S.W., *Adjunct (Social Work)*  
 Carole L. Bender, M.S.W., *Adjunct (Social Work)*  
 M. Christina Benson, M.D., *Visiting*  
 Jane E. Burroughs, M.S.W., *Adjunct (Social Work)*  
 Cynthia E. Busto, M.S.W., *Visiting (Social Work)*  
 J. Alfred Cannon, M.D., *Visiting*  
 Mary S. Dewire, J.D., *Adjunct (Mental Health Law)*  
 William E. Donnelly, M.S.W., *Adjunct (Social Work)*  
 Angela Farrell, M.S.W., *Adjunct (Social Work)*  
 Joanne S. Feigen, M.S.W., *Adjunct (Social Work)*  
 Florence Frisch, M.S.W., *Adjunct (Social Work)*  
 Marielle C. Fuller, *Adjunct (Biobehavioral Sciences)*  
 Charlotte B. Gelb, M.S.W., *Adjunct (Social Work)*  
 Claudia Gerber, R.N., *Adjunct (Biobehavioral Sciences)*  
 Tracy A. Goodlick, B.A., *Adjunct (Biobehavioral Sciences)*  
 Mary Lou Gottlieb, M.S.W., *Adjunct (Social Work)*  
 Howard B. Hall, D.S.W., *Adjunct (Social Work)*  
 Carrie-Ellen Jacobs, Ph.D., *Adjunct (Biobehavioral Sciences)*  
 Dennis T. Jaffe, Ph.D., *Visiting (Biobehavioral Sciences)*  
 Joan E. Johnson, M.S.W., *Adjunct (Social Work)*  
 Martha B. Jura, Ph.D., *Adjunct (Biobehavioral Sciences)*  
 Tom L. Kennon, M.S.W., *Adjunct (Social Work)*  
 Ronald N. Kornblum, M.D., *Visiting*  
 Myrtle Mandiberg, M.A., *Adjunct (Biobehavioral Sciences)*  
 Miriam A. Meyer, M.S.W., *Visiting (Social Work)*  
 Wendy L. Morrell, M.S.W., *Adjunct (Social Work)*  
 Natalie R. Newman, M.D., *Adjunct (Biobehavioral Sciences)*  
 Hindy Nobler, M.S.W., *Visiting (Social Work)*  
 Anderson W. Pollard, M.S.W., *Adjunct (Social Work)*  
 Pearl Rapp, M.S.W., *Adjunct (Social Work)*  
 Judith W. Ross, M.A., *Adjunct (Biobehavioral Sciences)*  
 Barbara H. Sackoff, M.A., *Adjunct (Medical Sociology)*  
 Catherine Sammons, M.S.W., *Adjunct (Social Work)*  
 Olga Samuel, M.S.W., *Adjunct (Social Work)*  
 Breena T. Satterfield, M.S.W., *Visiting (Social Work)*  
 Marjorie C. Schuman, Ph.D., *Visiting (Biobehavioral Sciences)*  
 Elizabeth Shima, M.S.W., *Adjunct (Social Work)*  
 Cynthia A. Telles, M.A., *Adjunct (Biobehavioral Sciences)*  
 J. Mark Thompson, M.D., *Adjunct*  
 Frank J. Trankina, Ph.D., *Adjunct (Medical Psychology)*  
 Bertha Unger, M.A., *Adjunct (Biobehavioral Sciences)*

W. Paul Von Blum, J.D., *Adjunct (Medical Humanities)*  
 Ruth A. Waldron, M.S.S., *Adjunct (Social Work)*  
 Claire Weiner, M.S.W., *Adjunct (Social Work)*  
 Lillian L. Weitzner, M.S.W., *Visiting (Social Work)*  
 Joyce Will, M.S.W., *Visiting (Social Work)*  
 Marguerite Wood, M.S.W., *Adjunct (Social Work)*

## 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 University 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** is cosponsored by the Department of Psychology and the Department of Psychiatry and Biobehavioral Sciences and by the Office of Instructional Development — Field Studies Development. Each year a group of 28 students is selected for the program which runs during the Winter/Spring Quarters. Students participate in courses and research at Lanterman State Hospital and Developmental Center, a facility for mentally retarded citizens in Pomona, and do related fieldwork while living at the site. During each quarter of the program up to 20 units of coursework related to developmental disabilities are offered. Most of the courses are in the Psychiatry/Psychology M180 through M182 series, but courses from other departments (such as Biology) may supplement these offerings. 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 (70 Powell Library) or the Psychology Undergraduate 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 January 1. The primary goal of the internship is 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.

A certificate is also awarded by the department to qualified graduate students who successfully complete the **Mental Retardation and Other Developmental Disabilities Training Program**. The program fulfills the internship requirement for the Ph.D. program in Clinical Psychology and the master's program in social welfare, and for the disciplines of speech pathology, occupational therapy, and nutrition at nearby universities. Further, it satisfies state licensure and clinical placement requirements in psychology, speech and language, special education, social welfare, nursing, pediatrics, pediatric dentistry, occupational therapy, and nutrition. Interested students should contact the program training coordinator for further information.

Information on clinical practicums which are offered in conjunction with other educational institutions and UCLA departments may be obtained from the department office.

## Master of Social Psychiatry

The Master of Social Psychiatry (M.S.P.) program is not admitting new students at this time.

## Upper Division Courses

**M112. A Laboratory for Naturalistic Observations: Developing Skills and Techniques.** (Same as Anthropology M136Q and Psychology M155.) Prerequisite: consent of instructor. The skill of observing and recording behavior in natural settings is taught, emphasizing field training and practice in observing behavior. Group and individual projects are included. Some of the uses of observations and their implications for research in the social sciences are also discussed.

Mr. Gallimore, Mr. Turner, Mr. Weisner (W)

**M119. Evolution of Intelligence.** (Same as Psychology M119.) Lecture, two hours; discussion, two hours. Prerequisites: Psychology 15 or 115, an introductory statistics course, junior or senior standing, consent of instructor. Intelligence is treated as neural information-processing capacity, and its evolution in vertebrates is correlated with the evolution of enlarged brains. Quantitative approaches in evolutionary biology and the neurosciences are emphasized.

Mr. Jerison

**M133. Exceptional Children.** (Same as Psychology M133B.) Prerequisite: Psychology 130. Study of the issues and research problems in the areas of mental retardation, giftedness, learning disorders, emotional disorders, and childhood psychosis.

Mr. Frankel

**CM135. Theoretical Issues in Disorders of Language Development.** (Same as Linguistics CM135.) Lecture, two hours; discussion, two hours. Prerequisites: Linguistics 1 or 100, and 130, or consent of instructor. Introduction to the field of language disorders of children. The course deals primarily with some clinical syndromes which are associated with delayed or deviant language acquisition: aphasia, autism, mental retardation. Theories regarding etiology and the relationship of these disorders to each other are examined. Such questions as the relationship of cognition to linguistic ability are considered. Concurrently scheduled with Psychiatry CM237/Linguistics CM235. Graduate students are expected to apply more sophisticated knowledge and produce a research paper of greater depth.

**M142. Advanced Statistical Methods in Psychology.** (Same as Psychology M142.) Lecture, two hours; discussion, two hours. Prerequisite: Psychology 41. Chi square, special correlation methods, multiple regression, nonparametric methods, analysis of variance, reliability and validity.

Mr. Nihira (W)

**175. Women Physicians: Professional Socialization.** Prerequisite: undergraduate standing. The seminar deals with the professional socialization of women in medicine. The focus is on the developmental stages of medical training and practice (premed, medical school, internship, residency, and various specialty areas of private practice). Women trainees and physicians in various specialties participate in presentations. A research project is required.

Mr. Coombs

**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 the concepts, issues, and research techniques in the area of mental retardation. Biological, psychological, and community questions concerning the causes and treatment of developmental disabilities, as well as systems for the care and training of retarded individuals, are explored. Lectures, directed reading, and discussion.

Mr. Fluharty and the Staff

**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.

Mr. Baker

**M181A-M181B. Research in Contemporary Problems in Mental Retardation.** (Same as Psychology M181A-M181B.) Corequisites: courses M180A, M180B. Research experience. In Progress grading.

Mr. Silverstein and the Staff

**M182A. Advanced Statistical Methods in Mental Retardation.** (Same as Psychology M182A.) Prerequisite: Psychology 41. Limited to Immersion Program students. Introduction of statistical method and design in experimentation principles of statistical inference and appropriate testing methods. An introduction to the use of computers and various software packages is presented.

Mr. Olmstead

**M182B. Advanced Design and Statistics.** (Same as Psychology M182B.) Prerequisite: course M182A. Continuation of course M182A.

Mr. Silverstein

**M182C. Perception.** (Same as Psychology M182C.) Limited to Immersion Program students. Human information processing, both physical and psychological, with special emphasis on pathologies in the mentally retarded.

Mr. Galbraith

**M182D. Current Issues in Mental Retardation.** (Same as Psychology M182D.) Limited to Immersion Program students. Advanced topics in mental retardation. May be repeated for credit by consent of instructor.

Mr. Olmstead

**M183. Introduction to Neuroscience.** (Same as Psychology M183.) Limited to Immersion Program students. Gross anatomy of the human brain and spinal cord.

Mr. Buchwald, Mr. Olmstead

**M190. Ethology: Physiology of Behavior and Learning in Animals.** (Same as Psychology M118F.) Lecture, four hours; laboratory, one hour. Basic course for undergraduate students which integrates a systematic overview of common forms of behavioral plasticity and standard training procedures in laboratory animals (in behavioral, neurophysiological, and pharmacological studies) with a broad biological, evolutionary perspective.

Mr. Soltysik

**199. Special Studies in Psychiatry (2 to 4 units).** Prerequisite: consent of instructor and department Chair, based on a written proposal outlining the course of study. The proposal is to be structured by instructor and student at time of initial enrollment. Additional information and course proposal forms are available in the Office of Education, B7-349 NPI.

## Graduate Courses

**200. Colloquium on Biobehavioral Sciences (1 unit).** Prerequisite: consent of instructor. The colloquium establishes a vehicle for continuing education on recent advances in various scientific fields relevant to behavior in its biobehavioral and biosocial contexts. It provides a forum for pertinent interdisciplinary discussion. Speakers present information from their area of competence and express their ideas on the relevance of this material to the broader issues of behavior.

Mr. West

**M201A-M201B-M201C. The Functional Organization of Behavior (2 units each).** (Same as Neuroscience M201A-M201B-M201C.) Prerequisite: consent of instructor. Course M201A is prerequisite to M201B, which is prerequisite to M201C. **M201A** is introductory and focuses on the development of behaviors within different species and the functional uses of behaviors. An evolutionary biological perspective is used as the framework. **M201B** focuses on research studies designed to take into account the functional behavior of animals. **M201C** focuses on special questions of interest to students.

Mr. Eiduson, Mr. McGuire (F,W,Sp)

**207. Hypnosis Seminar (2 units).** Prerequisites: training in psychotherapy, education in psychodynamics and psychopathology, and consent of instructor. Experiential seminar with guided reading and training in inductions, anesthesia, age regression, imagery techniques, distortion of time and space, therapeutic applications (including direct symptom removal, behavioral methods, and hypnoanalysis), and training patients for self-hypnosis. Emphasis on developing skill for application in clinical practice. S/U grading.

Ms. Holroyd

**208A-208B-208C. Clinical Neuropsychology: Assessment of Brain Damage (2 units each).** Prerequisites: graduate or postgraduate standing, consent of instructor. The aim of the course is to introduce and review neuropsychological concepts, including functional neuroanatomical systems of the brain, analytic and synthetic activities of the brain, the effects of generalized and focal brain impairment on behavior, and the use of neuropsychological test instruments. **208A** focuses on fundamentals of neuropsychology and the assessment of brain damage in adults. **208B** reviews the effects of brain damage in children and child neuropsychological assessment. **208C** is devoted to the neuropsychological assessment of particular patient groups (e.g., the elderly, the epilepsies and dyscontrol syndromes).

Mr. Marsh (F,W,Sp)

**209A-209B-209C. Behavior Therapy Practicum (2 units each).** Prerequisite: consent of instructor. The behavior therapy practicum provides instruction and supervision in the behavioral treatment of a variety of problems presented by adult outpatients, including anxiety, affective, conversion, obsessive-compulsive, psychosexual, and eating disorders. By means of a lecture/workshop approach, trainees learn behavioral analysis and assessment, personal effectiveness training, systematic and vivo desensitization, contingency contracting and management, and cognitive behavior modification.

Mr. Munford (F,W,Sp)

**M210A-210B. Seminar in Psychocultural Studies.** (Same as Anthropology M234A-M234B.) Lecture, three hours. Prerequisite: consent of instructor. The two-quarter sequence is devoted to the present state of research in psychocultural studies. It surveys work in child development and socialization, personality, psychobiology, transcultural psychiatry, deviance, learning, perception, cognition, and psychocultural perspectives on change.

Mr. Edgerton, Mr. Price-Williams

**M211. Sociocultural Perspectives on Mental Retardation.** (Same as Anthropology M234R.) Lecture, three hours. Prerequisite: consent of instructor. The seminar explores concepts such as "intelligence," "competence," and "adaptive behavior" in varying non-Western societies as background to the study of the phenomenon of mental retardation in the West, particularly the United States. Topics include cross-cultural perspectives, the history of institutional confinement, the policies of deinstitutionalization and normalization, and current issues involving adaptation and "quality of life." Also to be discussed are topics such as communicative competence, work, crime, deviance, sexuality, and marriage. May be repeated for credit.

Mr. Edgerton

**M212. Cultural Modes of Thought.** (Same as Anthropology M232P.) Lecture, three hours. Prerequisite: consent of instructor. An examination of the influences of culture on learning, perception, thinking, and intelligence. The course covers the fields of cross-cultural psychology in addition to cognitive anthropology. The focus is on learning and thinking in non-Western cultures but includes problems of education in ethnic areas within the U.S.

Mr. Gallimore, Mr. Price-Williams

**M213A-M213B. The Individual in Culture.** (Same as Anthropology M235A-M235B.) Lecture, three hours. Course M213A is prerequisite to M213B. In Progress grading.

**M214. Selected Topics in the Cross-Cultural Study of Socialization and Childhood.** (Same as Anthropology M236P.) Lecture, three hours. Prerequisite: consent of instructor. Methods, ethnographic data, and theoretical orientations. Emphasis on current research. May be repeated for credit.

Mr. Weisner

**216. Neural Basis of Human Recent Memory.** Lecture, two hours; discussion, one hour. Prerequisites: graduate standing, consent of instructor. An interdisciplinary course integrating current research findings in neuroanatomy, molecular neurobiology, synaptic neurophysiology, event-related potentials, neuropsychology of amnesia, and cognitive psychology of normal memory into a realistic model.

Mr. Halgren

**218. Circadian Psychobiochemistry (2 units).** Prerequisite: consent of instructor. Current theories on the biological basis of psychiatric disorders are reexamined from a circadian perspective. Emphasis on the relationship between diurnal disturbances and affective disorders. Topics include neurotransmitters, sleep, hormones, body temperature, and electrolytes. S/U grading.

Mr. DeMet

**M219A-M219B. Basic Core Courses in Mental Retardation Research (2 units each).** (Same as Anthropology M237A-M237B.) Lecture, two hours; discussion, two hours. Prerequisite: consent of instructor. Required of all MRRC trainees. The course provides a systematic overview of mental retardation and the sciences basic to this field of study. It acquaints students with the language, methods, aims, and contributions of the various disciplines that contribute to the field. The last two weeks of the second quarter are spent discussing and preparing multidisciplinary research designs with potential for the prevention or amelioration of mental retardation. S/U grading.

Mr. Buchwald, Mr. Edgerton

**220A-220B. Living Systems Theory and Its Applications (2 units each).** Prerequisite: consent of instructor. Current status of basic and applied scientific research in systems science at the levels of the cell, the organ, the organism, the group, the organization, the society, and the supranational systems. Present and potential future applications of systems science to psychodiagnostics, psychotherapy, group processes, community psychiatry, and organizational behavior. Possible applications to neurosciences, artificial intelligence, instructional technology, and other fields.

Mr. Miller

**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 the questions of "sick" societies. May be repeated for credit.

Mr. Kennedy

**223. MMPI Seminar and Case Conference (2 units).** Seminar, one hour; discussion, one hour. Prerequisite: psychology intern, psychiatry resident, or consent of instructor. Seminar and case conference on the interpretation of the Minnesota Multiphasic Personality Inventory (MMPI) — theory, principles, and research into the personality types. Case data relating to the MMPI profile and treatment planning are discussed.

Mr. Caldwell

**226A-226B. Childhood Schizophrenia Research Seminar (2 units each).** Prerequisite: consent of instructor. Current research in the causes and behavioral manifestations of childhood schizophrenia. Discussion on diagnosis and etiology of childhood schizophrenia is included.

Mr. Frankel, Mr. Tanguay

**228. Behavioral Medicine.** Seminar, three hours. Prerequisite: consent of instructor. Review of behavioral science knowledge and techniques relevant to the understanding of physical health and illness and discussion of the application of this knowledge and these techniques to prevention, diagnosis, treatment, and rehabilitation. Integration of behavioral and biomedical approaches is stressed.

Mr. McCreary, Mr. Munford, Mr. Reeves, Mr. Shapiro

**230. Confucius and Asian Americans.** Prerequisite: consent of instructor. The seminar focuses on the cultural aspects relevant to the treatment of Asian Americans. The philosophical teachings of Confucius are discussed. Similarities and differences among Asian Americans and relevant clinical issues are presented. S/U grading.

Mr. Chien, Mr. Yamamoto

**231. Hispanics and Mental Health (2 units).** Prerequisite: consent of instructor. Course highlights mental health issues and needs of Hispanics through seminars and videotapes dealing with historical comparison of psychiatry in Mexico and the United States, an analysis of the various theoretical perspectives regarding biopsychosocial behavior; distinguishing psychodynamic from cultural factors in the treatment of Spanish-speaking patients; treatment of Hispanic families, couples, undocumented persons, and criminal justice system clientele.

Mr. Loya, Mr. Morales, Ms. Telles (W)

**232A-232B-232C. Human Sexual Dysfunction (2 units each).** Prerequisite: consent of instructor. One-year training and research course in the direct behavioral treatment of human sexual dysfunction. A combination of didactic material and supervised experience.

Mr. Golden (F,W,Sp)

**M233. Alcoholism and Drug Abuse among Women.** (Same as Public Health M293.) Prerequisite: consent of instructor. Discussion of the psychosocial aspects of abuse of alcohol and other drugs among women. Topics include etiology, prevention, treatment, hormonal influences, and the role of the family. Emphasis on current theoretical perspectives and research findings.

Ms. Beckman

**234A-234B-234C. Affective Disorders (1 unit each).** Prerequisites: graduate standing, consent of instructor. General topics related to the primary affective disorders (depression, manic depressive illness), including diagnosis, pharmacology, epidemiology, psychology, phenomenology, biology, and treatment.

Ms. Jamison

**M235. A Laboratory for Naturalistic Observations: Developing Skills and Techniques.** (Same as Anthropology M236Q and Education M222A.) Lecture, three hours. Prerequisite: consent of instructor. The skill of observing and recording behavior in natural settings is taught, emphasizing field training and practice in observing behavior. Some of the uses of observations and their implications for research in the social sciences are also discussed. Students are expected to integrate observational work into their current research interests. May be repeated for credit.

Mr. Gallimore, Mr. Turner, Mr. Weisner

**236A-236B-236C. Psychology Interns Seminar (1 unit each).** Prerequisite: consent of instructor. Current topics in clinical psychology. The group selects topics for discussion pertaining to psychopathology, diagnostic evaluation, and modalities of treatment. S/U grading.

Ms. Holroyd

**CM237. Theoretical Issues in Disorders of Language Development.** (Same as Linguistics CM235.) Lecture, two hours; discussion, two hours. Prerequisites: Linguistics 1 or 100, and 130, or consent of instructor. Introduction to the field of language disorders of children. The course deals primarily with some clinical syndromes which are associated with delayed or deviant language acquisition: aphasia, autism, mental retardation. Theories regarding etiology and the relationship of these disorders to each other are examined. Such questions as the relationship of cognition to linguistic ability are considered. Concurrently scheduled with Psychiatry CM135/Linguistics CM135. Graduate students are expected to apply more sophisticated knowledge and produce a research paper of greater depth.

**238. Language Development, Cognition, and Thought in Atypical Children (1 unit).** Lecture, one hour; discussion, 30 minutes. Prerequisite: consent of instructor. Specific problems in language development are considered, with particular regard to their implications for differential diagnosis. The relationship between language and cognition and the issue of thought disorder in children are addressed.

Ms. Needleman

**M239. Psychopharmacology.** (Same as Pharmacology M239.) Prerequisite: consent of instructor. A presentation of the effects of drugs on behavior, with special attention to drugs used in psychiatry and drug seeking behavior. Physiological and biochemical mechanisms underlying such actions are analyzed. Reports on relevant current research are made.

Mr. Jarvik

**240A-240B-240C. Assessment and Treatment of Afro-American Families (3 units each).** Prerequisites: graduate standing, consent of instructor. The course aids mental health professionals and trainees in the evaluation and treatment of Afro-American families in terms of their cultural milieu, historical background, and economic status. Didactic presentations by instructors and invited guests form the basis for a supervised evaluation and case management with an Afro-American child and family.

Ms. Bass, Ms. Powell, Ms. Wyatt (F,W,Sp)

**241A-241B-241C. Observation of Group Psychotherapy (2 units each).** Prerequisite: consent of instructor. Principles of adult psychotherapy are explored through observation of an ongoing group, lectures, and discussion. Major theoretical emphasis on humanistic-group dynamic approaches.

Mr. Rosen (F,W,Sp)



**242A-242B-242C. Child Psychotherapy Seminar (1 unit each).** Prerequisite: consent of instructor. In **242A-242B** videotaped diagnostic and treatment sessions of children and their families provide a framework for discussing such topics as diagnostic criteria, the beginning of treatment, the overdetermined nature of the symptom, transference phenomenon related to parental conflict, initial recovery of psychological reactions to past events, factors enhancing future working relationships with child and family, and various other technical issues, including the handling of terminations. In **242C** the theory and principles of psychoanalytic work with parents are offered. Focus on initiating and maintaining the treatment of the family. Student presentations are encouraged in order to amplify clinical and theoretical issues.

Mr. Heinicke (F,W,Sp)

**243A-243B-243C. Mental Retardation Interdisciplinary Core Curriculum (1 unit each).** Prerequisite: consent of instructor. A survey series on major topic areas of mental retardation, covering epidemiology, nosology, assessment, health care delivery systems, basic genetics, nutrition, direct care, and special deficits. Presented in an interdisciplinary framework as generic information independent of discipline.

Mr. Tymchuk (F,W,Sp)

**244. Computers in Mental Retardation Research.** Prerequisite: consent of instructor. An introduction to the basic nature of digital computer systems, with emphasis on their impact on society. The course is directed toward providing the student with a broad general understanding of applications and limitations of computers. Specific examples are drawn from clinical, research, and administrative applications within the mental retardation and child psychiatry program.

Mr. Guthrie, Mr. Hull (W)

**245A-245B. Psychological Assessment of Severely Handicapped Children (3 units each).** Lecture, 90 minutes. Prerequisite: consent of instructor. Course **245A** is prerequisite to **245B**. The course focuses on the psychological assessment of the preschool child. Specific emphasis on the assessment of children with developmental disabilities and children who are generally thought to be "unteachable." The course has a practical orientation and involves two hours per week of supervised testing. S/U grading.

Ms. Freeman (F,W)

**M246. Psychological Aspects of Mental Retardation.** (Same as Psychology M246.) Prerequisite: consent of instructor. Discussion of the 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).

Mr. Tymchuk

**247A-247B-247C. Neurological and Psychological Bases of Behavior (1 unit each).** Lecture, one hour; discussion, one hour. Prerequisites: graduate standing, consent of instructor. Involves discussion of advances in neurophysiology and neuropsychology, with particular reference to modern developmental studies. Faculty members or advanced students present results of their research work in the context of available literature; intense discussion occurs during and after presentation.

Mr. Buchwald, Mr. Levine (F,W,Sp)

**248. Research Rounds in Mental Retardation and Developmental Disabilities (1 unit).** Prerequisite: consent of instructor. Monthly session consists of presentation of a patient and discussion of research approaches relevant to that patient. Staff members from various disciplines and invited speakers participate. S/U grading.

Mr. Levine

**249A-249B. Language Disorders of Childhood (3 units each).** Prerequisite: consent of instructor. Course reviews language disabilities in children, their relationship to normal maturational patterns and to other aspects of behavior, the critical period hypothesis, universals of language development, environmental factors affecting language acquisition, neural mechanisms underlying speech and language, diagnostic methods, and approaches to remedial language training.

Ms. Baltaxe

**251. Laboratory Exercises in the Techniques of Mammalian Cell Culture.** Laboratory, twelve hours. Prerequisites: graduate or medical student standing, consent of instructor. The course provides a working knowledge of the physiology and biochemistry of mammalian cells in culture through laboratory exercises involving the propagation and manipulation of differentiated and undifferentiated continuous mammalian cell lines. S/U grading.

Mr. Haggerty

**253. Seminar: Child Development (1 unit).** Prerequisite: consent of instructor. The seminar is divided into three sections: theories of development, systems of child development, and chronological aspects of child development. Presentation of assigned readings by the student plays a major role in each session.

Mr. Cantwell

**M254. Counseling Families of Handicapped Children (2 units).** (Same as Social Welfare M242.) Prerequisite: consent of instructor. 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.

Ms. Gottlieb (W)

**256. Basic Clinical Child Psychopathology (1 unit).** Prerequisite: consent of instructor. Weekly seminars covering the basic clinical aspects of child psychopathology. Readings are provided for a basis of discussion on topics including interviewing of parents and children, diagnosis, and related syndromes.

Mr. Cantwell

**257A-257B-257C. Diagnostics and Therapeutics of Language Disabilities (3 units each).** Prerequisite: consent of instructor. The course is directed toward the language specialist seeking training in the developmental disabilities of language and includes training in diagnostic techniques and therapy approaches. Linguistic disabilities are placed within the framework of total behavior. The clinical practicum includes individual case supervision, a review of the pertinent literature, and a discussion of research topics. Students are required to complete a clinical research project in psycholinguistics and neurolinguistics.

Ms. Baltaxe (F,W,Sp)

**259. Legal and Ethical Issues in Developmental Disabilities (3 units).** Prerequisite: consent of instructor. Discussion of current laws in mental retardation/developmental disabilities, philosophies, ethics, ethical codes, issues, how to resolve them, videotape, discussion of cases.

Mr. Tymchuk

**M261. Seminar on Law, Medicine, and Human Values (3 units).** (Same as Law M533.) Prerequisite: consent of instructor. The seminar deals with legal, philosophical, and psychological issues arising in the context of the doctor-patient relationship. Emphasis on an analysis of the value conflicts underlying and manifested in medical practices and legal policies. Course material is taken from legal, medical, and philosophical literature, legislation, case law, and medical case histories.

Mr. Winslade

**262. Law and Psychiatry (2 units).** (Formerly numbered M262.) Prerequisite: consent of instructor. Introduction to the orientation, premises, functioning, and potential contributions of psychiatry. Review of the practical and theoretical aspects of collaboration between law and psychiatry.

Mr. Mills, Mr. Winslade

**264. Biofeedback: Theory, Research, and Clinical Application.** Seminar, two hours; laboratory, one hour. Prerequisite: consent of instructor. Introduction to concepts and techniques of biofeedback, including review of experimental literature and applications to various clinical problems (hypertension, headache, pain and anxiety, sexual dysfunction, cardiac arrhythmias, neuromuscular disorders, etc.). Training in the use of portable biofeedback devices. Consideration of research and clinical issues.

Mr. Shapiro

**265. Mind and Brain in Evolution (2 units).** Prerequisite: consent of instructor. The course reviews the fossil evidence on the organic evolution of the brain and the implications of that evidence for the evolution of mind and intelligence. Quantitative approaches are emphasized. Although some implications for cognitive psychology and individual differences are considered, the evolutionary analysis is "above the species level."

Mr. Jerison

**266. Psychophysiological Research.** Prerequisite: consent of instructor. Advanced seminar and discussion of ongoing laboratory research. Issues involve concepts, experimental design, measurement, and data analysis. Current topics include biofeedback, conditioning, and behavioral control of automatic functions, regulation of physiological and subjective reactions to stress and pain, and the evaluation of clinical biofeedback methods.

Mr. Shapiro

**M268. Behavioral Management of Pain Problems (2 units).** (Same as Anesthesiology M268.) Prerequisite: consent of instructor. The course reviews current knowledge and skills involved in the behavioral assessment and management of acute and chronic pain problems. The behavioral perspective is integrated with related physiological and medical considerations.

Mr. McCreary, Mr. Reeves

**271. Ethology of Motivation and Conditioning.** Basic facts and concepts of motivation and learning in animals are presented in the framework of ethological and neurophysiological approach. Classical and instrumental conditioning procedures are discussed, with particular attention to the motivational variables.

Mr. Soltysik

**M272. Psychological Anthropology.** (Same as Anthropology M234Q.) Lecture, three hours. Prerequisite: consent of instructor. The course deals with 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. The course also deals with questions relating to symbolic and unconsciousness process as they are related to culture. Topics vary from quarter to quarter. May be repeated for credit.

Mr. Edgerton

**274. Neurophysiology and Behavior (3 units).** Prerequisites: graduate standing, consent of instructor. The course provides an analysis of strategies and approaches used to study behavior of mammalian organisms. Special emphasis on recent developments in electrophysiological recording techniques in behaving animals and how such developments relate to classical concepts of brain function.

Mr. Hull, Mr. Levine

**275A-275B. Sociobiology Seminar (2 units each).** Prerequisite: consent of instructor. The course is designed to review in detail sociological theory as it applies to adult bonding behavior: kin-selection theory, reciprocal altruism theory, mate selection theory, and bond strategy theory. Bonds are viewed primarily from a biological rather than a psychological perspective. In Progress grading.

Mr. McGuire

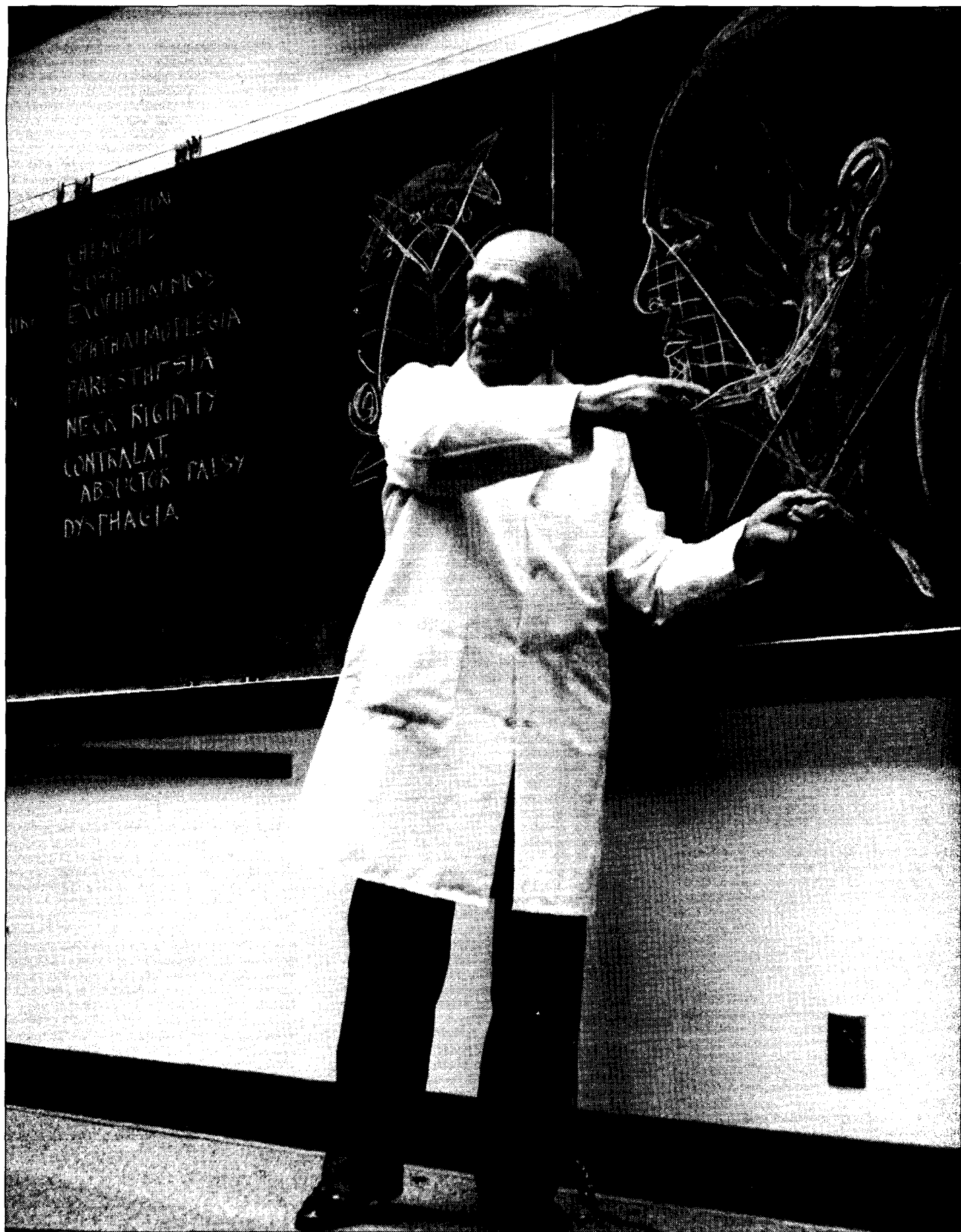
**277. From Research to Practice: Biobehavioral Contributions (2 units).** Prerequisite: consent of instructor. An overview of biobehavioral research as it is currently translated into therapeutic and preventive practice across disciplines. S/U grading.

Mr. Serafetinides

**278. Clinical Psychopharmacology Research.** Prerequisite: consent of instructor. Directed research experience at the graduate level. Research skills are taught in the practical setting of ongoing psychopharmacology research projects. Discussion of ongoing psychopharmacology research projects and of proposed new projects focusing on practical problems, design, methodology, procedures, and instrumentation.

Mr. May





CHROMID  
CORE  
EXOPHTHALMOS  
OPHTHALMOPLÉGIA  
PARESTHESIA  
NECK RIGIDITY  
CONTRALAT.  
ABDUCTOR PALSY  
DYSPHAGIA

**M279A-M279B-M279C. Seminar: Selected Topics in Human Ethology.** (Same as Anthropology M229A-M229B-M229C and Education M281A-M281B-M281C.) Ethologists now use successful animal behavior methodology to study human behavior. When is this appropriate, how can it contribute? Each quarter covers one level of analysis: describing and recording behavior; causation; development, especially longitudinal studies; adaptation; evolutionary origins. Mr. Blurton Jones (F,W,Sp)

**M280. Alcohol and Drug Abuse: Social Policy Perspectives (3 units).** (Same as Public Health M292.) Prerequisite: consent of instructor. Alternative models of alcohol and other drug additions are examined and implications assessed for public policy regarding their control. Prevention efforts and findings from California and national surveys are considered, with primary emphasis on alcohol use and abuse. Ms. Beckman

**281. Behavioral Therapy in an Educational Setting (3 units).** Prerequisite: consent of instructor. The course provides supervised experience in a classroom working with exceptional children. Theoretical background is furnished through a one-hour weekly lecture. Ms. Richey

**282. Schizophrenia: A Developmental Perspective (2 units).** Prerequisite: consent of instructor. The course reviews research on the transmission of schizophrenia. Emphasis on a critical appraisal of the research strategies used to tease apart the relative contributions of environmental and genetic factors in the transmission of schizophrenia and on studies of children at risk for schizophrenia. Mr. Asarnow

**283. Theories of Childhood Psychosis (1 unit).** Prerequisite: consent of instructor. The aim of the course is to present the biological and neurophysiological theories of the etiology of childhood psychosis. Mr. Tanguay

**285A-285B-285C. Intermediate Family Therapy (3 units each).** Seminar, two hours. Prerequisite: consent of instructor. Theories and techniques of family therapy. History, foundations, and indications and contraindications for family therapy and diagnosis. Observations and demonstrations are included. Students are encouraged to bring videotapes of their family therapy cases for discussion. Ms. Goldenberg (F,W,Sp)

**287. Psychopharmacology Seminar (2 units).** Prerequisite: consent of instructor. A discussion of ongoing research in the area of psychopharmacology. Emphasis on smoking and other drug-related habits. Topics include initiation, maintenance, and cessation of habits. Basic mechanisms are stressed. Psychological procedures used in habit development and control, particularly coping methodology, are discussed. Mr. Jarvik

**290. Quantitative Analysis of Ethnographic Data.** Prerequisite: graduate standing. The course provides didactic and experiential training in quantification and analysis of ethnographic data, including principles of psychological scaling and techniques of behavioral measurement as applied to ethnographic data and application of univariate and multivariate statistical methods for analysis of ethnographic data. Mr. Nihira

**M291A-M291B. Seminar in Behavioral Biology.** (Same as Anthropology M228A-M228B, Biology M252A-M252B, Education M229A-M229B, Physiology M252A-M252B, and Psychology M230A-M230B.) Discussion, six hours. Prerequisite: consent of instructor. Basic seminar for graduates interested in behavioral biology. An interdisciplinary course dealing with behavioral research in anthropology, biology, psychology, and the medical sciences. Proximate causation, development, and evolution in animal behavior. Physiology and the organization of behavior. Vertebrate social organization. Animal communication. The application of natural selection theory to human social behavior. In Progress grading.

**298. Current Topics in the Biobehavioral Sciences (2 to 4 units).** Prerequisite: consent of instructor. Current issues in the biobehavioral sciences are offered on a selective basis depending on instructor interest and topical relevancy of problems. See *Schedule of Classes* for topics and instructors. May be repeated for credit.

**402. Childhood Psychosis Journal Club (1 unit).** Prerequisite: consent of instructor. Discussion of basic and applied research issues related to childhood psychosis by a series of speakers. Readings are suggested for each topic. Mr. Frankel

**403. Individual Case Supervision (1 to 4 units).** Prerequisite: consent of instructor and department Chair (based on a written proposal to be structured by instructor and student prior to enrollment; additional information and proposal forms are available in the Office of Education, B7-349 NPI). One-to-one supervision of individual therapy cases. Includes analyses of patient data, supervision of ongoing treatment, informal didactic sessions on personality theory, and applications to patient management.

**413. Community Meeting: 2-West (1 unit).** Prerequisites: assignment to Ward 2-West, consent of instructor. One-hour course is devoted to individual experience in leading a large group of patients and staff. Leadership is by rotation. A 30-minute process didactic session follows. Mr. Baxter

**414. Emergency Treatment Attending Rounds (1 unit).** Prerequisites: assignment to Emergency Treatment Unit, consent of instructor. Cases seen in the emergency room during the preceding night are reviewed by a consultant and the emergency treatment staff. Assessment techniques, methods of intervention, and alternate modes of treatment are explored. Mr. Slawson

**416. Treatment Planning Meetings (1 unit).** Prerequisite: consent of instructor. The course focuses on treatment and management problems posed by inpatient psychiatry. Clinical psychopathology, treatment plans, and interdisciplinary skills are discussed. Emphasis on formulating accurate diagnostic assessments and planning effective treatment programs utilizing the therapeutic methods of the milieu (somatic therapies, behavioral techniques, family therapy, group process, individual and dyadic treatment, etc.).

Section 1: 2-West

Mr. Baxter

Section 2: 2-South

Mr. Thompson

Section 3: A-South

Mr. Diamond, Mr. Strober

Section 4: 6-West

Ms. Asarnow

**424. Ward Milieu Meeting (1 unit).** Prerequisite: consent of instructor. Milieu course meetings are designed to explore experientially and didactically the multiple aspects of group process on a psychiatric inpatient ward.

Section 1: A-South

Mr. Diamond, Mr. Strober

Section 2: A-West

Mr. Baxter

Section 3: 2-West

**425. Child Preadmission, Admission, and Disposition Conference (1 unit).** Prerequisite: consent of instructor. Child preadmission is the case study of child and family prior to inpatient admission. Course deals with (1) interview techniques, (2) suitability for admission, and (3) goals for hospitalization. Admission and disposition include presentation of problem cases, usually with combined physical and intellectual defects for interdisciplinary problem solving.

Section 1: A-South

Mr. Diamond, Mr. Strober

Section 2: A-West

Ms. Asarnow

Section 3: 4-West

Ms. Petty

Section 5: 6-West

Ms. Asarnow, Ms. Brownfield

**426. Psychology Interns Psychosomatic Liaison Case Conference.** Prerequisite: consent of instructor. Psychology interns case conference of psychosomatic aspects of physical illness. Cases are discussed with regard to management issues, psychotherapy issues, methods of psychodiagnosis, countertransference, and relevant literature. In addition, participants receive individual supervision on a weekly basis. Mr. Wellisch

**429. Child Outpatient Team (1 unit).** Prerequisite: consent of instructor. Weekly team meetings to coordinate the clinical activities of the trainees in the Child Outpatient Department. Discussion of literature and theories related to selected cases. S/U grading. Section 1: First-Year Child Fellows. Mr. Cantwell

Section 2: Second-Year Child Fellows.

Mr. Simmons, Mr. Tanguay, Mr. Tarjan

Section 3: Second-Year Residents.

Mr. Yager

Section 4: Second-Year Residents.

Mr. Yager

Section 6: UAF Trainees.

Mr. Tymchuk

**445. Family Therapy Seminar for Clinicians (2 units).** Prerequisites: prior clinical responsibility and treatment experience with individuals or families and consent of instructor. Conceptual and practical issues of family development and treatment are presented. Emphasis on structural family therapy. Alternative models may be reviewed during the year. Videotape is used extensively. Case supervision is available. Participants must be treating one or more families. Mr. Gottlieb

**449. Supervision in Systematic Parent Training (2 units).** Lecture, 90 minutes; discussion, one hour. Prerequisites: graduate standing, consent of instructor. Advanced clinical trainees learn behavioral techniques of assessment and treatment of parent-child problems. The sessions are composed of lectures, case presentations, and workshops on the various skills necessary. Mr. Frankel

**462A-462B-462C. Advanced Mental Health Consultation.** Prerequisite: consent of instructor. The course provides knowledge of children in schools through: (1) field experience; (2) a didactic program; (3) group supervision. Each trainee chooses a local elementary or junior high school as the site of field experience in consultation. Supervision focuses on assessing the needs of the school and initiating the consultation. Seminars consider theories of consultation, systems theory as applied to the schools, the organization of the school systems, the professional roles represented in the school (e.g., teachers, counselors, principals, etc.), and their special problems. In Progress grading. Mr. Cantwell

**465. Pediatric Psychopharmacology Seminar (1 unit).** Prerequisite: child psychiatry fellow or consent of instructor. Course objectives are to acquaint trainees with (1) the background of childhood psychopharmacology, (2) clinical evaluation of psychotropic drugs with children, and (3) clinical indications for various psychotropic drugs. Clinical supervision of individual cases is provided along with seminars and discussions of various articles. Mr. Cantwell

**471. Child Psychiatry Grand Rounds.** Prerequisite: consent of instructor. Each month one clinical subdivision of the Mental Retardation and Child Psychiatry Program presents a major clinical problem. Senior faculty discussants preside. The presenting trainees are expected to cover the pertinent literature and to assemble the critical elements of information on the case or problem at hand.

**M472A. Nursing Care of the Developmentally Disabled.** (Same as Nursing M410A.) Lecture, one hour; discussion, one to two hours; laboratory, ten hours minimum. Prerequisite: consent of instructor. Study of the handicapping conditions of childhood and their effects on the individual and the family. Content is 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 the implementation of intervention strategies. Series of three courses integrates didactic material and clinical experience. Ms. Savino (F)

**M472B. Nursing Care of the Developmentally Disabled.** (Same as Nursing M410B.) Lecture, one hour; discussion, one to two hours; laboratory, ten hours minimum. Prerequisites: course M472A and/or consent of instructor. Study of the philosophical and conceptual models affecting care delivery for the developmentally disabled. Emphasis on intervention strategies necessary for primary, secondary, and tertiary prevention. Ms. Savino (W)

**M472C. Nursing Care of the Developmentally Disabled.** (Same as Nursing M410C.) Lecture, one hour; discussion, one to two hours; laboratory, ten hours minimum. Prerequisites: course M472B and/or consent of instructor. Exploration and participation in the assessment, planning, and delivery of health care to the developmentally disabled in a variety of settings. Emphasis on the expanded role of the nurse.

Ms. Savino (Sp)

**478. Clinical Genetics Rounds.** Prerequisites: medical graduate, consent of instructor. Weekly clinical rounds on patients seen in the wards during the preceding week. House staff and others involved in clinical work may attend. Usually an in-depth discussion of the medical and genetic aspects of one or more disorders is presented. Ms. Crandall

**479. Genetics Clinic Presentation.** Prerequisite: consent of instructor. A weekly clinical teaching session on the patients seen in the preceding genetics clinic. An in-depth discussion on the genetics of each disorder follows. Ms. Crandall and the Staff

**480. Analysis of Human Chromosome Studies (1 unit).** Prerequisite: consent of instructor. Chromosome karyotypes prepared in the cytogenetics laboratory during the preceding week are presented and discussed with reference to clinical findings. Teaching includes the interpretation of abnormal karyotypes and the technical aspects of routine and special chromosome stains. Mr. Sparkes

**481. Chromatography Review.** Prerequisites: pre-medical course or biochemistry, consent of instructor. A weekly session in which amino acid chromatography carried out during the preceding week is presented. Teaching concerns the interpretation of abnormal chromatograms together with the technical aspects of the tests used. Mr. Cederbaum

**482A-482B-482C. Psychology Interns Group Process (1 unit each).** Prerequisite: consent of instructor. The purpose is to teach the students about group processes and dynamics. The course involves an active learning experience whereby students study their own group interactions in order to examine group process variables such as styles of leadership, verbal and nonverbal methods of communication, the development of trust, self-disclosure, and the effects on group process of stereotypes about ethnic and masculine-feminine characteristics of people. S/U grading. Ms. Holroyd

**485. Medical Genetics Seminar.** Prerequisites: introductory course, consent of instructor. A weekly lecture series intended for those interested in genetics or in the 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 the audience are encouraged. Ms. Crandall and the Staff

**596P. Individual Studies in Psychiatry (2 to 12 units).** Prerequisite: consent of instructor and department Chair, based on a written proposal outlining the course of study. The proposal is to be structured by instructor and student at time of initial enrollment. Additional information and course proposal forms are available in the Office of Education, B7-349 NPI. Directed individual research and study in psychiatry at the graduate level. Mr. Tymchuk

## Radiation Oncology

B3-109 Center for Health Sciences,  
825-9304

### Chair

Robert G. Parker, M.D.

### Vice Chairs

Edward A. Langdon, M.D.

Dr. Ahmed Sadeghi (Wadsworth VA)

## Scope and Objectives

The Department of Radiation Oncology includes the clinical medical specialty in which physicians use ionizing radiation in the treatment of tumors, usually malignant tumors. The specialty demands a thorough knowledge of the disease in question, knowledge of the efficacy of other treatment methods, an appreciation of the clinical aspects of radiation physiology and radiation biology, and knowledge of the physical characteristics of the radiations that are employed. The department also includes divisions of physical and biological sciences directly related to understanding the fundamental cellular responses to ionizing radiation.

The interests of the radiation oncologist range from immediate clinical problems through cellular kinetics to development of radiation modifiers, immunology, and basic biochemistry. The educational program serves medical students and postgraduate physicians who are qualifying for certification in therapeutic radiation 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

AR-259 Center for Health Sciences,  
825-7811

### Professors

Zoran L. Barbaric, M.D.

Leslie R. Bennett, M.D.

H. K. Huang, D.Sc., *Acting Chief, Medical Physics Division*

Norman S. MacDonald, Ph.D.

Carol M. Newton, M.D., Ph.D.

Amos Norman, Ph.D.

Robert G. Parker, M.D. (*Radiation Oncology*)

Michael E. Phelps, Ph.D. (*Jennifer Jones Simon Professor of Biophysics*)



James B. Smathers, Ph.D. (*Radiation Oncology*)  
 Milo M. Webber, M.D.  
 Gabriel H. Wilson, M.D., *Chair*  
 H. Rodney Withers, M.D., D.Sc. (*Radiation Oncology*)  
 Moses A. Greenfield, Ph.D., *Emeritus*  
 Richard F. Riley, Ph.D., *Emeritus*

#### Associate Professors

Jorge R. Barrio, Ph.D.  
 Edward J. Hoffman, Ph.D., *in Residence*  
 Sung-Cheng Huang, D.Sc., *in Residence*

#### Assistant Professors

W. N. Paul Lee, M.D., *in Residence (Pediatrics)*  
 Juan F. Lois, M.D.  
 James Winter, M.D., Ph.D., *in Residence*

#### Adjunct Professor

J. Duncan Craven, M.D.

#### Adjunct Associate Professors

L. Stephen Graham, Ph.D.  
 Francis E. Holly, Ph.D. (*Radiation Oncology*)  
 Martin W. Herman, Ph.D.  
 Lawrence Williams, Ph.D.

#### Adjunct Assistant Professors

Lee T. Myers, Ph.D. (*Radiation Oncology*)  
 James S. Whiting, Ph.D.

#### Adjunct and Visiting Lecturers

David O. Findley, Ph.D., *Visiting*  
 Charles Moler, *Adjunct*  
 Peter Rosemark, Ph.D., *Visiting (Radiation Oncology)*  
 Marilyn C. Wexler, M.S., *Visiting (Radiation Oncology)*

## Scope and Objectives

The Medical Physics graduate program in the Department of Radiological Sciences offers training in the general fields of radiation physics, biophysics, radiation biology, and medical imaging, with special applications to diagnostic radiology, nuclear medicine, and radiation oncology. Specialized facilities for training and research are available in the departmental clinical laboratories, the Laboratory of Biomedical and Environmental Sciences, the Image Processing Laboratory, and a number of associated hospitals. Highly specialized equipment includes the biomedical cyclotron, the radiation oncology cyclotron, the positron emission tomography (PET) scanners, the stereotactic gamma irradiator, and a VAX-11/750 computer system with an image processor. Students are trained to work both as professional medical physicists and as independent investigators.

Graduates in medical physics can expect to engage in any combination of clinical service, consultation, research, and teaching. Medical 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 govern-

ment agencies, medical physicists are involved in the formulation and enforcement of regulations applied to the use of radiation in health care delivery.

## Requirements for Graduate Degrees

### Admission

In addition to the University's minimum requirements, candidates for admission are required to have a bachelor's degree with a major in a science. Also, it is expected that all applicants will have had (1) one year of college physics (calculus-based), plus the equivalent of Physics 8E, (2) two years of college mathematics, including calculus equivalent to Mathematics 31A, 31B, 32A, 32B, 33A, 33B, (3) one year of college chemistry, (4) one year of college biology, and (5) at least two courses in computer science.

Scores from the Graduate Record Examination Aptitude Test, taken in the last three years, should be sent to the department. Three letters of recommendation are required. If you already have a master's degree, one of the letters should be from your thesis adviser.

A brochure describing the program in medical physics may be obtained from the Department of Radiological Sciences, Medical Physics Division, AR-259 CHS, UCLA School of Medicine, Los Angeles, CA 90024.

## Master of Science in Medical Physics

### Course Requirements

Eleven graduate and two undergraduate courses, including Radiological Sciences 200A, 200B, 202A-202B-202C, 203, 204, 205, 207, 260A-260B, Biomathematics 210 or equivalent, Public Health 100A and 100B, are required for the M.S. degree. In addition, you must take courses in human anatomy and physiology, if not taken prior to admission.

For some students with a medical physics background or a career objective other than a practicing medical physicist, a more sharply focused curriculum may be advised.

Courses 596 and 598 may be applied toward the degree. Eight units of 500-series courses may be applied toward the total course requirement, four units toward the minimum graduate course requirement.

### Thesis Plan

You are required to write a thesis based on a research project. After you have completed the course requirements, you must choose a faculty member to guide this research and become chair of your thesis committee.

## Ph.D. in Medical Physics

### Admission

Admission to the doctoral program requires passing the departmental screening examination given at the end of the Fall and Spring Quarters each year. This examination, held over a four-day period for about four hours each day, covers the content of all medical physics courses and includes current research in medical physics. You have two chances to pass this examination. Completion of a master's program is not required.

### Qualifying Examinations

The screening examination for admission to the Ph.D. program should be taken by the end of the sixth quarter in residence. Once the screening examination is passed and you have selected a research area for the dissertation, you should, within a reasonable time frame agreed on with the dissertation adviser, form a doctoral committee and schedule the first University Oral Qualifying Examination. This examination covers your mastery of the medical physics curriculum, particularly the areas of the proposed dissertation topics.

If you do not complete the dissertation within four years after taking the written screening examination, you may be required to take it again.

### Final Oral Examination

The final oral examination, or dissertation defense, is required.

## Upper Division Course

**199. Directed Individual Study or Research for Undergraduate Students (2 to 4 units).** Prerequisite: consent of graduate adviser (based on a written proposal outlining the course of study or research). Directed individual study in medical 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.** Prerequisite: consent of instructor. Nuclear structure, statistics of radioactive decay, nuclear radiations and their interaction with matter, nuclear decay processes, nuclear reactions, dosimetry, and compartment models. The physical and chemical properties of radioactive preparations used in nuclear medicine. Mr. Norman

**200B. Instrumentation in Nuclear Medicine.** Prerequisite: course 200A. Introduction to nuclear medicine instrumentation, including exterior probe systems, well scintillation detectors, liquid scintillation counters, scanners, and cameras; dosimetry of internally administered radioisotopes. Mr. Graham

**202A-202B-202C. Applications of Medical Physics to Clinical Problems.** Selected studies in the clinical use of radioisotopes:

**202A. Nuclear Medicine.** Prerequisite: course 200B or consent of instructor.

**202B. Diagnostic Radiology.** Prerequisites: courses 200A, 205, 208A-208B, or consent of instructor.

**202C. Radiation Therapy.** Prerequisites: courses 203, 204, 207, 208A-208B, or consent of instructor.

**203. Physics of Radiation Therapy.** Radiation quantities and units. Radiation dosimetry, clinical applications in treatment planning. Methods of measuring radiation quantities. The calibration of radiation therapy equipment. Mr. Smathers

**204. Introductory Radiation Biology.** Effect of ionizing radiation on chemical and biological systems. Mr. Withers

**205. Physics of Diagnostic Radiology.** Production of X rays, basic interactions between X rays and matter, X-ray system components, physical principles of medical radiography, radiographic image quality, fluoroscopy, image intensifiers, special procedures, X-ray protection. Laboratory experiments illustrate the basic theory. Mr. Huang

**206. Advanced Instrumentation: NMR, CT, and DR.** Prerequisites: courses 200A, 200B, 209, 210. An introduction to the recent advances in digital diagnostic imaging systems, with topics centered on instrumentation in nuclear magnetic resonance (NMR) imaging, computed tomography (CT), and digital radiography (DR). Mr. Huang

**207. Radiation Protection and Health Physics.** Concepts in radiation protection, the recommendation of the national council on radiation protection and measurements, the maximum permissible dose levels. Shielding calculations. The layout and design of radiographic installation. Mr. Herman

**208A-208B. Medical Physics Laboratory.** Prerequisites: courses 203, 205. Techniques for measuring ionizing and nonionizing radiation, applications to problems in radiological sciences. Mr. Herman

**209. Digital Techniques in Radiological Sciences.** Lecture, three hours; laboratory, one hour. Prerequisites: one course in Fortran or another computer language, consent of instructor. The course covers the basic principles of the digital technology used in radiological sciences. It introduces the concepts and provides the experience necessary to undertake radiological research in a diverse computing environment. The relationship between computers and diagnostic equipment is discussed with regard to data acquisition, equipment interfacing, and data analysis. Mr. Huang

**210. The Physics of Medical Imaging.** Prerequisites: courses 200A, 200B, 205, 209. Review of Fourier analysis measurement of the LSF and MTF. Radiographic mottle and the Wiener spectrum. Physics, mathematics, and engineering of imaging devices in conventional radiography, computerized tomography, ultrasound, and nuclear medicine. Detection of faint shadows, the ROC curve. Mr. Huang

**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. The course covers basic principles of computed tomography (CT), various reconstruction algorithms, special characteristics of CT, physics in CT, and various biomedical applications. Mr. S. Huang (W)

**260A-260B. Seminar in Medical Physics (2 units each).** Joint critical study by students and instructors of the fields of knowledge pertaining to medical physics. Periodic contributions are made by visiting scientists. Research in progress is discussed. Mr. Norman

**266A-266B-266C. Seminar in Nuclear Medicine (2 units each).** Topics of current interest in nuclear medicine. Intended for physicians, radiation physicists, and graduate students. Mr. Bennett

**268. Seminar in Radiopharmaceuticals (2 units).** Current concepts in radioactive pharmaceutical agents in clinical use, including promising investigational agents. Utilization of short-lived, cyclotron produced isotopes in radiopharmaceuticals. The rational design of new radiodiagnostic agents. Mr. Barrio

**481. Angiographic Techniques (1 unit).** Laboratory. Prerequisite: consent of instructor. Beginning radiology residents are taught basic techniques of angiographic procedures, utilizing animals. Mr. Snow

**495. Special Studies in Medical Physics.** Discussion, two hours; laboratory, four hours. Teaching assistance in graduate laboratory courses under the supervision of a faculty member. S/U grading.

**596. Research in Medical Physics (4 to 12 units).** Directed individual study or research. Only one 596 course may be applied toward the M.S. degree requirements. May be repeated for credit.

**597. Preparation for Ph.D. Qualifying Examination.** May not be applied toward the 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 the 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.

## Surgery

72-125 Center for Health Sciences,  
825-7017

### Chair

W. Eugene Stern, M.D.

### Executive Vice Chair

Eric Fonkalsrud, M.D.

### Vice Chairs

E. Carmack Holmes, M.D. (*Sepulveda VA*)  
Edward P. Passaro, Jr., M.D. (*Wadsworth VA*)  
Samuel E. Wilson, M.D. (*Harbor/UCLA*)  
George J. Wittenstein, M.D. (*Olive View*)

## Scope and Objectives

The Department of Surgery instructs medical students during all four years of medical school. Students are expected to obtain a broad knowledge of diseases treated by surgical means, 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 a 12-week core clerkship in clinical surgery. UCLA Medical Center, Wadsworth Veterans Hospital, and Harbor/UCLA Medical Center provide individual sections, each of which has a special orientation depending on the patient population and the individual staff. During the fourth year, students may elect to take additional clinical clerkships 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*.

# School of Nursing

**Mary E. Reres, Dean**

# 16



The UCLA School of Nursing is both nationally and internationally regarded for its education of nurses at both baccalaureate and graduate levels. The dedication and expertise of its faculty is in large part responsible for that high regard.

The learning of the science of nursing is enhanced by the modern technology present in the school, as well as the academic background of the faculty. The strong research emphasis at UCLA continually promotes both faculty and student efforts to develop sound basic and applied research resulting in improved health care delivery.

Basic to the school's philosophy is the fact that all individuals possess a unique culture that influences their response to illness and their involvement in the delivery of health care. In implementing this philosophy, the curriculum concentrates on the behavior of people as they move through the health-illness continuum. Thus, the programs provide for an understanding of social and cultural systems and of psychology and physiology under normal and pathological conditions. Nursing research is stressed throughout as the means for developing new knowledge.

The hallmark of the school is quality in both the students and faculty we attract and the alumni who represent us around the world. Since our graduates will work with persons of varied ethnic and racial backgrounds, there is an emphasis on cultural diversity in the progressive curriculum.

The UCLA School of Nursing sets the tempo for tomorrow in nursing health care and educates tomorrow's leaders in the field.



# School of Nursing

2-200 Louis Factor Building, Center for Health Sciences, 825-7181

## Professors

Charles E. Lewis, M.D., Sc.D.  
Sharon J. Reeder, R.N., Ph.D., *Associate Dean for Research*  
Mary E. Reres, M.P.N., Ed.D., *Dean*  
Maria W. Seraydarian, Ph.D.  
Donna L. Vredevoe, Ph.D.  
Lulu Wolf Hassenplug, R.N., M.P.H., Sc.D., *Emeritus*  
Dorothy E. Johnson, R.N., M.P.H., *Emeritus*  
Harriet C. Moidel, R.N., M.A., *Emeritus*  
Agnas A. O'Leary, R.N., M.P.H., *Emeritus*

## Associate Professors

Pamela J. Brink, R.N., Ph.D.  
Betty L. Chang, R.N., D.N.Sc.  
Kathleen A. Dracup, R.N., D.N.Sc.  
Jacquelyn H. Flaskerud, R.N., Ph.D.  
Phyllis A. Putnam, R.N., Ph.D.  
Gwen M. van Servellen, R.N., Ph.D.  
Donna F. Ver Steeg, R.N., Ph.D., *Associate Dean*

## Assistant Professors

Loretta M. Birkhead, R.N., Ed.D.  
Maryalice B. Jordan-Marsh, R.N., Ph.D.  
Jean A. C. Kerr, R.N., Ph.D.  
Deborah Koniak, R.N., Ed.D., *Assistant Dean for Continuing Education*  
Susan M. Ludington, R.N., Ph.D.  
Magelende R. McBride, R.N., Ph.D.  
JoEllen M. Murata, R.N., Ph.D.  
Juliet Tien, R.N., D.N.Sc.  
Margaret A. Topf, R.N., Ph.D.

## Clinical and Visiting Assistant Professors

Genevieve A. Bahu, R.N., M.N., *Clinical*  
Cecily L. Betz, R.N., Ph.D., *Visiting*  
Eleanor L. Brazal, R.N., M.Ed., *Clinical*  
Christine S. Breu, R.N., M.N., *Clinical*  
Mary E. Callaghan, R.N., M.S.N., *Clinical*  
Mary M. Canobbio, R.N., M.N., *Clinical*  
Anayis K. Derdarian, R.N., D.N.Sc., *Clinical*  
Marilyn K. Eisz, R.N., M.N., *Clinical*  
Debra J. Nash, R.N., M.S.N., *Clinical*  
Linda P. Sarna, R.N., M.N., *Clinical*

## Adjunct and Visiting Lecturers

Elizabeth C. Aitchison, R.N., M.N., *Visiting*  
William R. Crawford, Ed.D., *Visiting*  
Evelyn Gonzales, R.N., M.S.N., *Visiting*  
Mary E. Grech, R.N., M.S., *Visiting*  
Celine Marsden, R.N., M.N., *Visiting*  
Mary J. McAuliffe, R.N., M.S., *Visiting*  
Sandra K. Rowen, R.N., M.S., *Visiting*  
Cynthia C. Scalzi, R.N., M.N., *Visiting*  
Esther F. Seeley, R.N., M.N., *Adjunct*  
Evelyn G. Sobol, R.N., Ph.D., *Visiting*  
Irene M. Stuart, R.N., M.N., *Visiting*  
Pamela S. Thompson, R.N., Ph.D., *Visiting*  
Inese L. Verzemnieks, R.N., M.S., *Visiting*

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, UCLA School of Nursing, Los Angeles, CA 90024 (825-7181).

## History and Accreditation

The School of Nursing was authorized by the Regents of the University in 1949 as one of the professional schools of the Center for Health Sciences at UCLA. This action paved the way for the development of an undergraduate basic program in nursing and made possible the establishment of a graduate program leading to the Master of Nursing degree. 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 both programs since 1954.

### Degrees Offered

Bachelor of Science in Nursing (B.S.N.)  
Master of Nursing (M.N.)

## Bachelor of Science Degree

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.

The School of Nursing curriculum affords the opportunity to sit for the California Registered Nurse licensing examination at the conclusion of your junior year. You must maintain a minimum GPA of 3.0 each quarter and must petition the Assistant Dean to enroll beyond the four quarter courses usually permitted. Since many states do not reciprocally honor California nursing licenses obtained prior to completion of a baccalaureate degree, students who

plan to follow this sequence should contact the Assistant Dean of Student Affairs before the beginning of the freshman year for more complete details.

## 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 an overall grade-point average of 2.8 or better and have three letters of recommendation. 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 handicaps. 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 25 students each Fall Quarter. In addition to the regular *UC Undergraduate Application Packet* which must be filed with the Office of Undergraduate Admissions and Relations with Schools, an application must be filed with the school by November 30. This application is available directly from the Student Affairs Office, UCLA School of Nursing, 2-200 Louis Factor Building, Los Angeles, CA 90024.

You can find a discussion of the prenursing curriculum and prehealth advising in "Preparing for a Professional School" in Chapter 5.

## Degree Requirements

The degree of Bachelor of Science in Nursing will be granted on fulfillment of the following requirements.

- (1) You must complete 45 required courses (180 quarter units) of college work and satisfy the general University requirements.
- (2) Of the required 45 courses, at least 21 courses must be in general education, including the courses listed under the "Prenursing Curriculum" in Chapter 5 on the College of Letters and Science.

(3) You must complete at least 25 courses (100 quarter units) of upper division coursework toward the degree, including Nursing 101, 104A, 104B, 104C, M105, 109, 120A through 120F, 184, 190A, 190B, 193, 195, four electives, Public Health 100A, 180.

(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 a grade of C or better in the following courses: Nursing 101, M105, 109, 120A through 120F, 190A, 190B.

(6) You must have been enrolled in the School of Nursing during the final three quarters of residence; the last nine courses must be completed while so enrolled.

**Study Lists:** You may not enroll in more than four courses per quarter unless a petition is approved in advance by the Assistant Dean.

## Honors

### Dean's Honors

Dean's Honors will be 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 with the Bachelor's Degree

College honors are awarded at graduation to students with a superior overall grade-point average. To be eligible for college honors, you must have completed at least 90 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 graduate program with the highest grade-point average in all nursing courses.

## Master of Nursing Degree

The School of Nursing offers graduate study leading to the Master of Nursing (M.N.) degree. Students will contribute to improving nursing care through the application of advanced knowledge in nursing research, theory, and clinical practice. Throughout the program, the structure for nurse-client relationships and research is provided by the nursing process. This is a deliberative problem solving activity which includes assessment, diagnosis, intervention, and evaluation. In addition to their clinical specialization sequence, students may elect courses in teaching consultation and/or administration as preparation to meet their specific career goals.

## Admission

(1) You must have graduated from a recognized college or university having an NLN-accredited baccalaureate nursing program satisfactory to the School of Nursing and to the Graduate Division. If you have completed other curricula (e.g., graduated from a foreign institution), you may be required to enroll in certain undergraduate nursing courses which generally will not apply toward requirements for advanced degrees.

(2) You must have status as a licensed registered nurse in the State of California.

(3) An upper division statistics course or a lower division statistics course with content equivalent to Public Health 100A must be completed before entering the school.

(4) An upper division nursing research course, taken at an NLN-accredited institution and equivalent to Nursing 193, must be completed before entering the school.

(5) Professional and/or academic competence in nursing attested through three letters of recommendation is required.

(6) A satisfactory scholarship record is required.

(7) Since written and verbal communication skills are basic to the practice of nursing, it is essential that students read, write, and speak English well. Foreign applicants from countries in which English is not the first language and medium of instruction, whether licensed Registered Nurses in the United States or not, are required to pass the Test of English as a Foreign Language (TOEFL) with a score of 550 or higher.

(8) All foreign applicants, prior to consideration for admission, are required to pass the Committee on Graduate of Foreign Nursing Schools Examination (CGFNS).

In addition to the Graduate Division application, you must also file the Application for Admission to Graduate Study in the School of Nursing, available through the Student Affairs Office, UCLA School of Nursing, Los Angeles, CA 90024. Application deadline is December 30 for both Fall and Spring Quarters. For information on admission to graduate standing, see Chapter 3.

## Major Fields or Subdisciplines

The School of Nursing offers graduate studies in the following areas.

**Maternal-Child Health:** Maternity, pediatrics.

**Medical-Surgical Nursing:** Cardiopulmonary, general medical-surgical, nursing administration, oncology.

**Primary Ambulatory Care / Family Nurse Practitioner:** Family, gerontology, occupational health.

**Psychiatric-Mental Health:** Child mental health, community mental health, consultation

liaison nursing, ethnic mental health, psychiatric nursing.

You may choose to add preparation in education or administration to your clinical requirement.

Course requirements for each specialty area are detailed below.

## Degree Requirements

(1) A minimum of ten courses (40 units) in the Nursing 100, 200, 400, and 500 series is required; eight of the courses (32 units) must be taken in the School of Nursing, with five (20 units) in the 200 and 400 series. Additional coursework is required to fulfill the requirements for certain areas of specialization. A total of eight units of 500-series courses may be applied toward the total course requirement for the degree.

(2) A minimum grade-point average of 3.0 is required. A grade of B is required in graduate clinical nursing courses in order to advance to the next clinical course in a series.

(3) A minimum of three quarters in full time (eight units per quarter) is required for academic residence.

(4) A comprehensive examination or a thesis is required.

## Course Requirements

You must successfully complete a minimum of one course from each of the following areas:

(1) Research in nursing (Nursing 204).

(2) Nursing theory (Nursing 203, 210, 211, 212, M217, 221, 222, 223, 224, 225).

(3) Cultural diversity (Nursing M158, 196, 250, 251 or Public Health M283G).

(4) Clinical practice (Nursing 401, 402A, 402B, 414, 415, 416, 417, 421A through 429C, 440A, 440B, 441A, 441B). Courses selected from clinical practice must be completed in accordance with the requirements for clinical courses listed under each specialization.

(5) Clinical specialization.

Additional course requirements vary according to specialty area listed below.

### Maternal-Child Health

**Maternity Clinical Nursing Specialty:** The goal of this specialty is to develop clinical specialists who take a leadership role in the nursing management of the childbearing family in all phases of the reproductive cycle. Students develop individualized plans of study to meet their personal and professional goals. Guided options include management of low risk pregnancy, alternative birthing, perinatal nursing, and neonatal intensive care. This specialty requires a total of ten courses, including Nursing 203, 204, one cultural diversity course, 212, 223, 422A, 422B, and either 422C and/or two functional elective courses.

**Pediatric Clinical Nursing Specialty:** The goal of this specialty is to develop clinical specialists who take a leadership role in the nursing management of a selected group of children and families. Guided options include children and families experiencing acute/critical illness, chronic illness, developmental disabilities, neonatal adaptation, or oncology. This specialty requires a total of ten courses, including Nursing 203, 204, one cultural diversity course, 212, 223, 421A, 421B, and either 421C and/or two functional elective courses.

**Medical-Surgical Nursing Specialty:** The graduate of the medical-surgical nursing program is a specialist who takes leadership in the care of one or more specific groups of clientele whose health problems may be classified according to biological systems, pathology, acuity levels, medical treatment modalities, physical functions, or psychophysiological functions. Graduate students choose from existing clinical options (i.e., cardiopulmonary, oncology, general medical-surgical nursing, and nursing administration) and within each option they develop individualized plans of study to meet personal and career objectives.

**Cardiopulmonary:** This option is designed to prepare clinical nurse specialists to meet an increasing demand for improved health services for patients with cardiopulmonary diseases. Several years of experience in acute coronary/pulmonary care settings (medical and/or surgical) and/or in cardiac/pulmonary rehabilitation is highly recommended before entering this option. Graduates are expected to function as cardiopulmonary nurse clinicians, teachers, consultants, or research associates. This option requires a total of ten courses, including Nursing 204, 210 or 211, one cultural diversity course, 415, 423A, 423B, 423C.

**General Medical-Surgical:** The goal of this option is to prepare clinical specialists in general medical-surgical nursing. Students are encouraged to develop their own clinical focus in areas of acute chronic illness (e.g., critical care, trauma nursing, diabetes, neurological nursing). At least two years of prior experience in medical-surgical nursing is highly recommended. This option requires a total of ten courses, including Nursing 204, one theory course, one cultural diversity course, 423A, 423B, 423C, one elective course, and one course from 203, 401, or 403.

**Nursing Administration:** The major objective of this option is to prepare middle- and top-level nursing administrators. Students will learn to analyze the health needs of large groups of patients, organize and implement nursing services to meet those needs in collaboration with other disciplines, evaluate the results of nursing care delivery, and adjust nursing practice as required. The program requires six quarters of full-time study and a three-month summer

administrative residency. Stipends for the summer residency program are provided by the institutions in which the residency is done.

In addition to the required courses in the School of Nursing, students in this program take courses in the School of Public Health, Division of Health Services Management. Nursing administration students may select medical-surgical nursing as their clinical specialization. This program requires a total of 15 courses, including Nursing 204, one theory course, one cultural diversity course, 423A, 423B, 478A-478B, and six health services management courses (Public Health 130, 131, 139, 430, 431, 436).

**Oncology:** The comprehensive care of the cancer patient requires that nurses be prepared in theory and skills to minister to the patient's total needs — physical, psychological, emotional, social, and spiritual. This option is designed to prepare clinical nurse specialists for the interdisciplinary team responsibility for cancer prevention, treatment, and rehabilitation. In addition to clinical competence in preventive, detection, and rehabilitative phases of cancer care, emphasis is directed to the preparation of the clinician in research, teaching, administration, and consultation. This option requires a total of 11 courses, including Nursing 203, 204, one cultural diversity course, 401, 416, 417, 423A, 423B, 423C.

**Primary Ambulatory Care/Family Nurse Practitioner Specialty:** This specialty prepares family nurse practitioners to take a leadership role in the care of individuals throughout the lifespan. The focus is on collaborative practice to assure comprehensive quality health care and health maintenance in outpatient, work, nursing home, or home health 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. Special options are available in occupational health or gerontology, with additional coursework.

**Gerontology:** Courses in the gerontology nurse practitioner option focus on the knowledge and skills needed for leadership roles in primary health care for aged clients in ambulatory and long-term care facilities, at home, and in alternative settings. Interested students should request the fact sheet for this option.

**Occupational Health:** This option 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 is on health status assessment, health promotion, illness/accident prevention, and rehabilitation.

Requirements are met through a combination of courses and experiences specific to the delivery of occupational health care services. Interested students should request the fact sheet for this option.

**Psychiatric-Mental Health Specialty:** The primary intent of this specialization is the preparation of clinicians who can function in leadership, educational, research, practice, and consultative roles in mental health settings. The specific bases for practice are theories and research on personality development, function and dysfunction, biopsychosocial theories of mental illness, and psychotherapeutic approaches to nursing assessment, diagnosis, and treatment of clients' responses to mental health problems.

This specialty encompasses two subspecialties: community mental health (consultant to health agencies and/or nurse therapist) and psychiatric nursing (nurse therapist who serves individuals, groups, and families with acute or chronic mental health problems). Options within the subspecialties include child mental health (needs and problems of various age groups of children and their families), consultation liaison nursing (needs and problems of clients and consultees in general medical inpatient and outpatient settings), and ethnic mental health (health needs and problems of selected ethnic groups).

**Community mental health subspecialty** requires Nursing 204, one theory course, one cultural diversity course, 405, 424A, 424B, 440A-440B, 441A-441B.

**Psychiatric nursing subspecialty** requires Nursing 204, one theory course, one cultural diversity course, 405, 424A, 424B, 424C, one elective course.

**Child mental health option** requires courses listed under the psychiatric nursing subspecialty plus Nursing 234, or courses listed under the community mental health subspecialty plus Nursing 234.

**Consultation liaison nursing option** requires Nursing 204, one theory course, one cultural diversity course, 403, 405, 424A, 424B, 440A-440B, 442.

**Ethnic mental health option** requires Nursing 204, one theory course, 260, 403, 405, 424A, 424B, 440A-440B, 441A-441B, five cognate courses, a seminar in cultural concepts.

## Thesis Plan

If you choose the thesis plan, you normally select a thesis committee by the beginning of the third quarter or following completion of Nursing 204 and 205A or 205B. You are expected to complete the thesis within the normal five- to seven-quarter time period. Completed theses should be filed approximately two weeks before the awarding of the degree.

## Comprehensive Examination Plan

The comprehensive examination is given in written form and is scheduled each quarter. You are eligible to take the examination during the quarter in which you are advanced to candidacy and may repeat the examination, in its entirety or in part, twice. You must complete all requirements for the degree within one calendar year after advancement to candidacy.

## Upper Division Courses

**101. Introduction to the Art and Science of Nursing (8 units).** Lecture, four hours; discussion, two hours; laboratory, twelve hours; autotutorial laboratory/seminars, variable. An introduction to nursing theory and practice. Content includes the following modules: nursing process, pharmacology, interpersonal and technical skills. Methodology includes laboratory, lectures, discussion, seminars, autotutorial laboratory, and clinical application.

**104A. The Behavior of Man in Health and Illness.** An examination of the health-illness continuum from the framework of social and biological sciences. Content includes role theory, developmental theory, trans-cultural communication theory, and other theories relevant to nursing practice. Ms. Randall

**104B. The Behavior of Man in Health and Illness.** Prerequisite: course 104A. An examination of the health-illness continuum from the framework of illness as a stressor and the possible responses to such stress. Content includes anxiety, pain, cognitive disturbances, loss, and other responses relevant to nursing practice. Ms. Randall

**104C. The Behavior of Man in Health and Illness.** Prerequisites: courses 104A, 104B. Continuation of the examination of the health-illness continuum from the framework of illness as a stressor and the possible responses to such stress. Content includes anxiety, pain, cognitive disturbances, loss, and other responses relevant to nursing practice. Ms. Randall

**M105. Human Physiology.** (Same as Physiology M105.) Lecture, four hours; discussion, one hour. Prerequisite: nursing student standing or consent of instructor. Required of third-year nursing students. Lecture and discussion emphasizing a correlative approach to anatomy and physiology of the human body. Ms. Seraydarian

**109. Communication in Health Care.** Lecture, two hours; laboratory, six hours. Study of basic communication and group process theory and its application to practice. Laboratory experience emphasizes development of each individual's ability to communicate effectively in a dyad and in a small group. Ms. Topf

**120A. Clinical Nursing.** Five weeks. Lecture, four hours; laboratory, twenty-four hours. Prerequisites: courses 101, M105, 109. Clinical application of nursing theory in community situations: acute care, convalescent, and ambulatory. Theoretical content includes pathophysiology, pharmacology, and treatment modalities. Application of the theoretical concepts related to the nursing care of the child and his family. Ms. Nash, Ms. Verzemnieks

**120B. Clinical Nursing.** Five weeks. Lecture, four hours; laboratory, twenty-four hours. Prerequisites: courses 101, M105, 109. Clinical application of nursing theory in community situations: acute care, convalescent, and ambulatory. Theoretical content includes pathophysiology, pharmacology, and treatment modalities. Application of the theoretical concepts of reproduction to the nursing care of the family. Ms. Koniak

**120C. Clinical Nursing.** Five weeks. Lecture, four hours; laboratory, twenty-four hours. Prerequisites: courses 101, M105, 109. Clinical application of nursing theory in community situations: acute care, convalescent, and ambulatory. Theoretical content includes pathophysiology, pharmacology, and treatment modalities. Application of the theoretical content related to the nursing care of the patient undergoing medical interventions. Ms. Brazal

**120D. Clinical Nursing.** Five weeks. Lecture, four hours; laboratory, twenty-four hours. Prerequisites: courses 101, M105, 109. Clinical application of nursing theory in community situations: acute care, convalescent, and ambulatory. Theoretical content includes pathophysiology, pharmacology, and treatment modalities. Application of the theoretical content related to the patient undergoing surgical interventions. Ms. Grech

**120E. Clinical Nursing.** Five weeks. Lecture, four hours; laboratory, twenty-four hours. Prerequisites: courses 101, M105, 109. 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 the nursing care of individuals, groups, or communities.

**120F. Clinical Nursing.** Five weeks. Lecture, four hours; laboratory, twenty-four hours. Prerequisites: courses 101, M105, 109. Clinical application of nursing theory in community situations: acute care, convalescent, and ambulatory. Theoretical content includes pathophysiology, pharmacology, and treatment modalities. Application of community health concepts to nursing care in public health agencies. Ms. Sobol

**M158. Health in Culture and Society.** (Same as Anthropology M168.) Prerequisite: upper division standing. An examination of the 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. Ms. Brink

**184. Evolution and Dynamics of the Nursing Profession.** A study of the evolution of nursing, focusing on historical, ethical, moral, legal, and institutional ramifications of nursing practice. In addition, the rights, obligations, and societal and institutional expectations of the professional nurse. Ms. Ver Steeg

**188. Seminar in Physiology (2 units).** Prerequisite: course M105 or equivalent. Student presentation of selected topics in physiology based on recent monographs, review articles, and original research papers. Topics are designed to amplify and extend information presented in course M105 lectures. May be repeated for credit. Ms. Seraydarian

**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. An 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. Ms. Reeder

**190A. Selected Area of Clinical Concentration (6 units).** Lecture, two hours; laboratory, twenty hours. Prerequisites: courses 101, 104A, 104B, 104C, 120A through 120F. Beginning concentration in a clinical area of student's choice. Ms. Sobol and the Staff

**190B. Selected Area of Clinical Concentration (6 units).** Lecture, two hours; laboratory, twenty hours. Prerequisites: courses 101, 104A, 104B, 104C, 120A through 120F, 190A. Beginning concentration in a clinical area of student's choice. Ms. Sobol and the Staff

**193. Introduction to Research.** An introduction to planning a research project based on a simple question. Includes 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. Mr. Crawford

**195. Principles of Change and Change Agent Roles.** Lecture, two hours; discussion, two hours. Theories and methods of change and their application to nursing. Principles of leadership, teaching-learning, health delivery systems, organization of nursing care, and patient advocacy.

**196. Health Care Problems of Minority Group Members.** Prerequisite: Sociology 1 or 101. Description and discussion of the special health care problems which members of minority groups face. These problems may be related to socioeconomic status as well as ethnic background and subcultural differences. Ms. Tien

**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 the degree requirements. P/NP or letter grading.

## Graduate Courses

### Research in Nursing, Nursing Theory, and Cultural Diversity

**203. Theoretical Framework for Nursing Practice.** Comparative study of selected conceptual models of nursing and the recipient of nursing, with particular emphasis on the regulatory model, the adaptation model, the supplementary model, and the complementary model. Ms. Derdarian

**204. Research in Nursing: An Advanced Course.** Prerequisite: course 193 or equivalent upper division basic research methodology course. The course focuses on complex research designs and analysis of multiple variables. Emphasis on techniques for control of variables, data analysis, and interpretation of results. The interrelationship of theoretical frameworks, design, sample selection, data collection instruments, and data analysis techniques is analyzed in depth. Content is discussed in terms of clinical nursing research problems. Ms. Chang, Ms. Vredevoe, and the Staff

**205A. Qualitative Research Methods in Nursing.** Prerequisite: course 204. Emphasis on nursing research designs utilizing the field method approach, ethnomethodology, and/or inductive methods. Ms. Jordan-Marsh, Mr. Lewis

**205B. Quantitative Research Methods in Nursing.** Prerequisite: course 204. Emphasis on nursing research designs requiring statistical analysis of data. Ms. Vredevoe

**210. Respiratory Physiology as It Relates to Nursing.** Lecture, three hours; discussion, one hour; seminars. Prerequisite: upper division course in human physiology. An advanced treatment of the topic presented in lectures and seminars, with emphasis on current research. Application of knowledge to nursing problems is stressed. Ms. Seraydarian

**211. Cardiovascular Physiology as It Relates to Nursing.** Lecture, three hours; discussion, one hour; seminars. Prerequisite: upper division course in human physiology. An advanced treatment of the topic presented in lectures and seminars, with emphasis on current research. Application of knowledge to nursing problems is stressed. Ms. Seraydarian

**212. Discontinuities in Family Health during the Reproductive Years.** Lecture, two hours; discussion, one hour. An overview of selected problems with health connotations that are potentially disruptive to the family during childbearing years. Selected problems are examined in depth. Pertinent variables affecting the family's definition of the situation, resources, strategies for coping, and utilization of professional services are explored and their relevance for nursing practice is examined.

Ms. Reeder and the Staff

**M217. Medical Anthropology.** (Same as Anthropology M263.) Lecture, three hours. Prerequisite: course M158 or consent of instructor. Any of the topics covered in course M158 are selected each quarter for intensive literature review and independent projects. May be repeated for credit.

Ms. Brink

**221. Theoretical Frameworks for Developmental Problems, Middle and Later Years.** Aspects of life span development relevant to understanding health needs in middle and later years are studied. Changes in biological, cognitive, and psychosocial processes are explored, and implications for prevention and rehabilitative care are considered.

Ms. Putnam

**222. The Concept of Grief and Loss.** Lecture, three hours; laboratory, two to four hours. Prerequisite or corequisite: clinical nursing course. The course deals with the concepts and theories of grief and loss, with particular emphasis on the loss of a significant other. There also are discussions about death and the dying person, with the intent of assisting the care giver to deal more effectively with a person and/or family involved in a life-threatening experience.

Ms. van Servellen and the Staff

**223. Management of Developmental Problems, Early Years.** Study of selected human developmental theories, hypotheses, and concepts. Problems relevant to nursing are examined through the critique of pertinent literature.

Ms. Betz and the Staff

**224. Problems in Patient Motivation.** The major purpose is an exploration of the phenomena which may occur when a person assumes the role of a sick patient.

Ms. Topf

**225. Problems in Environmental Management.** The prevention and treatment of nursing problems related to conditions of the psychophysical and social environment.

Ms. Jordan-Marsh

**234. Issues in Health Care.** Prerequisite: consent of instructor. A comprehensive course dealing with present and future views of health care and the roles of health team members as viewed by society and influenced by societal values. Selected health care issues are debated by students utilizing an in-depth literature review on the issue.

Ms. Ver Steeg

**250. Seminar: Nursing in Other Cultures.** Prerequisite: consent of instructor. Discussion of anthropological principles which affect nursing care in a particular cultural environment. Individual research projects based on the medical problems found in such an environment and the projected nursing interventions relative to those findings.

Ms. Tien and the Staff

**251. Nursing Care to Ethnic People of Color in the United States.** Prerequisites: course 196 and graduate standing, or consent of instructor. Examines and evaluates selected theories from nursing and other sciences and their application to the delivery of intra-cultural and transcultural nursing care. Emphasis on value orientations, sociocultural perceptions and cognitions of health and illness, and ethnomedical health practices as predictive factors in analyzing health care delivery to ethnic people of color.

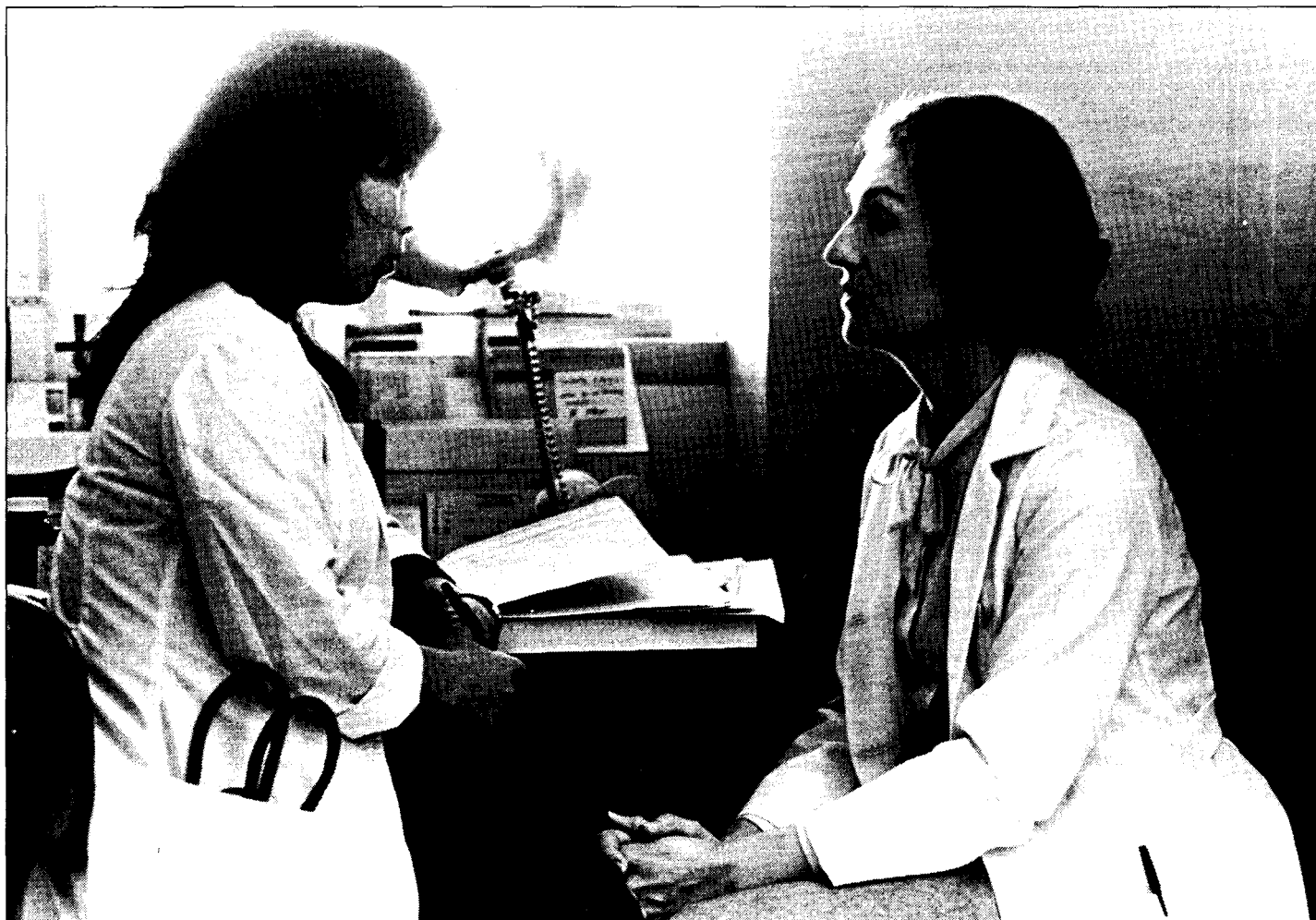
Ms. Tien

**260. Seminar in the Integration of Cultural Concepts and Mental Health Nursing (2 units).** Seminar, two and one-half hours (eight weeks). Prerequisites: course 424B, a minimum of two cultural diversity cognate courses, consent of instructor. Corequisite: course 403. Discussion of the concepts of culture, language, life-style, and health practices which influence the practice of primary care among Asian/Pacific, Black, Hispanic/Latino, and Native American people.

Ms. Tien

**264. Seminar in Primary Ambulatory Care.** Corequisites: courses 402A and/or 402B, or consent of instructor. Discussion of the concepts of team practice, interprofessional and intraprofessional relationships, legal issues, and the socioeconomic aspects of primary care.

Ms. Ver Steeg



## Clinical Practice

**401. Nursing Assessment and Intervention.** Lecture, two hours; laboratory, four to eight hours. Prerequisite or corequisite: course 203. Instruction and experience in the systematic assessment of patients for the identification of nursing problems. Discussion and evaluation of major modes of interventional practice. Ms. Derdarian

**402A-402B. Primary Diagnosis for Nurse Practitioners.** Lecture, four hours; laboratory, four hours; demonstration/practice, two hours. Prerequisites: successful completion of anatomy and physiology pretest, consent of instructor. Collection, analysis, and reporting of data used by the nurse practitioner in identification of patient problems. Principles and practice in history taking, physical examination, laboratory, and other diagnostic methodology. Pathology and pathophysiology are integrated in a systems approach. Ms. Stuart and the Staff

**403. Physical Assessment for the Clinical Specialist (4 to 6 units).** Lecture, four hours; optional seminars, two hours. Prerequisite: consent of instructor. Not open to primary ambulatory care majors. An introductory study of the basic techniques of history taking and physical examination which are used by clinical specialists as part of the total nursing assessment process. Includes theory, demonstration, and practice of physical assessment methodology. Optional seminars provide content pertinent to selected specialty areas. Ms. Stuart and the Staff

**404. Comprehensive Group Theory.** Lecture, two hours; laboratory, two hours. The course offers an in-depth study of group dynamics and group therapy, applicable to any health service area. It focuses on the study and application of group theory and practice relevant to nursing. The student gains in-depth knowledge of group dynamics and group therapy, knows how to apply the above theory to any area of nursing, develops a beginning ability to function as both leader and participant in the area of group dynamics and/or group therapy, and develops the ability to evaluate the effectiveness of group therapy. Ms. van Servellen

**405. Assessment in Psychiatric Nursing.** Lecture, two hours; laboratory, six to eight hours. A preparatory course for advanced clinical practice. The specific aim is a critical examination of the concepts and strategies which affect assessment of psychological behavior. Ms. Kerr and the Staff

**M410A. Nursing Care of the Developmentally Disabled.** (Same as Psychiatry M472A.) Lecture, one hour; discussion, one to two hours; laboratory, ten hours minimum. Prerequisite: consent of instructor. Study of the handicapping conditions of childhood and their effects on the individual and the family. Content is 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 the implementation of intervention strategies. Series of three courses integrates didactic material and clinical experience. (F)

**M410B. Nursing Care of the Developmentally Disabled.** (Same as Psychiatry M472B.) Lecture, one hour; discussion, one to two hours; laboratory, ten hours minimum. Prerequisites: course M410A and/or consent of instructor. Study of the philosophical and conceptual models affecting care delivery for the developmentally disabled. Emphasis on intervention strategies necessary for primary, secondary, and tertiary prevention. (W)

**M410C. Nursing Care of the Developmentally Disabled.** (Same as Psychiatry M472C.) Lecture, one hour; discussion, one to two hours; laboratory, ten hours minimum. Prerequisites: course M410B and/or consent of instructor. Exploration and participation in the assessment, planning, and delivery of health care to the developmentally disabled in a variety of settings. Emphasis on the expanded role of the nurse. (Sp)

**414. Current Perspectives in Respiratory and Cardiovascular Nursing (2 units).** Lecture, one hour; discussion, one hour. Prerequisite: consent of instructor. Exploration of selected problems, trends, and issues in respiratory and cardiovascular health care, with emphasis on their significance for the clinical nurse specialist. Ms. McAuliffe

**415. Assessment in Respiratory and Cardiovascular Nursing (2 to 6 units).** Lecture, one to four hours; laboratory, four to eight hours. Prerequisites: course 210 or 211, and consent of instructor. Introduction to the basic methods of assessing respiratory and cardiovascular function in health and illness, with emphasis on their application in clinical nursing practice. Ms. Dracup, Ms. McAuliffe

**416. Oncology and Treatment of Cancer.** Lecture, two hours; discussion, one hour; laboratory, eight to ten hours. Prerequisite: consent of instructor. Basic knowledge from biological, behavioral, and medical sciences for understanding the development, diagnosis, treatment, and prognosis of cancer. Nursing care management related to diagnostic and treatment modalities is stressed. Ms. Callaghan, Ms. Sarna

**417. Systematic Approach to Oncologic Nursing.** Lecture, two hours; discussion, two hours; laboratory, eight to ten hours. Prerequisites: course 416, consent of instructor. Nursing management of persons with various types of malignancies. The focus is on the assessment of special physical and psychosocial problems of patients with diagnoses of cancer in a specific site. The focus is also to provide the student with theoretical and technical skills necessary for the interventions of these problems. Ms. Callaghan, Ms. Sarna

**421A. Clinical Nursing Care of Children.** Discussion, two hours; laboratory, ten hours minimum. Prerequisites: course 203 (may be taken concurrently), one course in nursing theory. The course focuses on the application of a theoretical model and the nursing process to a specific, identifiable patient population in a pediatric setting, with special emphasis on assessment and diagnosis. Content covers each aspect of the nursing process. Ms. Betz and the Staff

**421B. Advanced Clinical Nursing Care of Children (8 units).** Discussion, two hours; laboratory, twenty hours minimum. Prerequisite: course 421A. The course focuses on the role of the clinical specialist in pediatric nursing, with emphasis on the practitioner core of the role. Students identify a selected patient population for whom they plan and implement the nursing process from assessment through evaluation. Content includes theoretical and practical issues related to the clinical specialist role. Ms. Betz and the Staff

**421C. Clinical Specialization in Nursing Care of Children (8 units).** Discussion, two hours; laboratory, twenty hours minimum. Prerequisite: course 421B. Required for the pediatric nursing specialization. The practitioner role is continued in this course to foster consolidation of knowledge and skills. Emphasis on the consultation and staff development dimensions of the clinical nurse specialist role. Ms. Betz and the Staff

**422A. Clinical Maternity Nursing.** Discussion, two hours; laboratory, ten hours minimum. Prerequisites: one theory course, consent of instructor. Emphasis on developing skill in the utilization of the assessment, intervention, and evaluation phases of the nursing process. The assessment phase as it relates to the childbearing family is stressed, as is family-centered orientation. Theoretical models for the study of the family and the development of nursing practice are examined and utilized in care giving. Pertinent variables affecting the delivery of care and utilization of health services for all segments of society are examined. Ms. Reeder and the Staff

**422B. Advanced Clinical Maternity Nursing (8 units).** Discussion, two hours; laboratory, twenty hours minimum. Prerequisite: course 422A. Knowledge and clinical expertise are refined and extended, with content emphasis on high-risk conditions and complications in the reproductive process. Utilization of the nursing process is continued, with emphasis on the prescriptive, interventional, and evaluative phases of the process. Teaching, counseling skills, and collegial relationships with coworkers are stressed. The health beliefs, orientations, and health behavior of clients from various cultural backgrounds are further examined and evaluated. The delineation and evaluation of researchable clinical questions are emphasized. Ms. Reeder and the Staff

**422C. Clinical Specialization in Maternity Nursing (8 units).** Discussion, two hours; laboratory, twenty hours minimum. Prerequisite: course 422B. Clinical expertise continues to be refined and extended in one or more areas of the high-risk conditions and/or normal phenomena encountered during the reproductive process as they relate to the assessment, intervention, and evaluative phases of the nursing process. Coordination of care, patient and family education counseling, and consultative skills are particularly stressed. The delineation and development of researchable clinical questions are further refined. Ms. Reeder and the Staff

**423A. Clinical Medical-Surgical Nursing (2 to 4 units).** Lecture, two hours; seminar, 90 minutes; laboratory, eight to sixteen hours. Prerequisites: course 204 (may be taken concurrently), one theory course; for nonmedical-surgical specialization students: consent of instructor (may enroll for two units). An advanced course in the theory and practice of the nursing care of medical-surgical adult patients. Major emphasis on the introduction of assessment and diagnosis of nursing problems within the UCLA conceptual framework for nursing practice. The assessment focuses on physiological and psychosocial changes in clients as they move on the health-illness continuum. The course is based on the synthesis of knowledge from prerequisite theory courses, with particular emphasis on application in clinical practice. Students select a nursing model of their choice in working with clients in one of the following options: (1) cardiopulmonary, (2) general medical-surgical, (3) oncology. Various clinical facilities are utilized, including acute, chronic, and rehabilitation settings. Ms. McBride and the Staff

**423B. Advanced Clinical Medical-Surgical Nursing (2 to 8 units).** Lecture, two hours; seminar, 90 minutes; laboratory, fifteen to thirty hours. Prerequisite: course 423A; for nonmedical-surgical specialization students: consent of instructor (may enroll for two units). Continued refinement of the nursing process and extension of professional knowledge and skills with a selected patient population. Emphasis on selection, utilization, and evaluation of interventions for nursing problems of medical-surgical patients. Students select a specific patient population for concentration in the course: (1) cardiopulmonary, (2) general medical-surgical, (3) oncology. Ms. Callaghan and the Staff

**423C. Clinical Specialization in Medical-Surgical Nursing (2 to 8 units).** Lecture, two hours; seminar, 90 minutes; laboratory, fifteen to thirty hours. Prerequisite: course 423B; for nonmedical-surgical specialization students: consent of instructor (may enroll for two units). Required for the medical-surgical specialization. Examination and implementation of the clinical nurse specialist role with a specific patient population and/or within a particular practice setting. Emphasis on the functional aspects of the role: practitioner, educator, consultant, researcher, administrator. Students select a specific patient population for concentration in the course: (1) cardiopulmonary, (2) general medical-surgical, (3) oncology. Ms. Canobbio and the Staff



**424A. Clinical Psychiatric Nursing.** Discussion, three hours; laboratory, eight to ten hours. Prerequisites: course 405, consent of instructor. Focus on the process of psychotherapy, with specific emphasis on the knowledge and skills of assessment and diagnosis. Content includes theories and techniques of practice. Ms. Kerr and the Staff

**424B. Advanced Clinical Psychiatric Nursing (8 units).** Discussion, three hours; laboratory, twenty hours. Prerequisites: course 424A, consent of instructor. Refinement and extension of the process of psychotherapy, with emphasis on prevalent psychiatric health issues. Ms. van Servellen and the Staff

**424C. Clinical Specialization in Psychiatric Nursing (8 units).** Seminar, two hours; laboratory, twenty-four hours. Prerequisites: course 424B, consent of instructor. Required for the psychiatric nursing specialization. Supervised internship. Students select the setting and population.

Ms. van Servellen and the Staff

**425A. Clinical Gerontological Nursing (4 or 8 units).** Discussion, three hours; laboratory, fifteen to thirty hours. Prerequisite: one course in nursing theory. Principles and practice of assessment of psychosocial variables in health problems of elderly. Emphasis on integrated understanding of multiple variable influences in total health.

**425B. Advanced Clinical Gerontological Nursing (4 or 8 units).** Discussion, three hours; laboratory, fifteen to thirty hours. Prerequisite: course 425A. Application of knowledge and skills of psychosocial nursing intervention in rehabilitation of the chronically ill aged.

**425C. Clinical Specialization in Gerontological Nursing (8 units).** Discussion, three hours; laboratory, thirty hours maximum. Prerequisite: course 425B. Extension and demonstration of competencies in planning and implementation of nursing programs in health problems of the elderly.

**429A-429B. Preceptorship in Primary Ambulatory Care Nursing (8 units each).** Lecture, three hours; discussion, three hours; laboratory, sixteen hours minimum. Prerequisites: courses 402A-402B, consent of instructor. Theory and clinical practice in nursing management and evaluation of health problems in a selected ambulatory population. Health maintenance is emphasized. Attention to the developmental and cognitive needs of clients in relation to family, social, and cultural structures.

Ms. Jordan-Marsh, Ms. Thompson, and the Staff

**429C. Advanced Preceptorship in Primary Ambulatory Care Nursing (8 units).** Lecture, two to three hours; discussion, two hours; laboratory, twenty-four hours minimum. Prerequisites: courses 429A-429B, consent of instructor. Required of students who want to meet the requirements for preparation as a nurse practitioner as established by the California Board of Registered Nursing. Emphasis on the refinement and extension of assessment, management, and evaluation skills, family health care, and community health concepts. Placements provide the opportunity for an in-depth focus on a specific group of health problems.

Ms. Murata and the Staff

**440A-440B. Clinical Specialization in Community Mental Health Consultation.** Lecture, three hours; clinical, ten hours. Prerequisites: course 424B, consent of instructor. Corequisites: courses 441A-441B. The study and application of mental health consultation theory and practices relevant to community mental health nursing. Focus on group consultation skills. The development of the nurse-consultant role in the interdisciplinary health team approach to mental health services. In Progress grading.

Ms. Tien

**441A-441B. Clinical Specialization in Community Organization.** Discussion, three hours; clinical, ten hours. Prerequisites: course 424B, consent of instructor. Corequisites: courses 440A-440B. Course focuses on the process of community mental health assessment and program evaluation and planning for health services. Emphasis on health advocacy, prevention of mental illness, and planned change concepts. In Progress grading.

Ms. Flaskerud

**442. Liaison Nursing.** Lecture, three hours; laboratory, ten hours. Prerequisites: courses 403, 440A. Behavior of groups of individuals is studied from an intersystem framework. The student focuses on the interactions of the health care providers and clients in general hospitals, clinics, and community health agencies. Attention to the variables influencing the health care providers' assessments and interventions concerning the clients' behavioral problem(s). This framework is utilized to evaluate the stability and direction of the organization as these are causally related to the system's effectiveness in the delivery of quality health care. The interrelatedness of such variables as human services, sociopolitical and cultural life-style factors of the system are examined.

Ms. Flaskerud

## Functional Preparation

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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.

**473. Generic Consultation (4 to 8 units).** Discussion, three hours; laboratory, ten to twenty hours. Prerequisites: introductory and intermediate clinical practicums, one course in group dynamics and process, or equivalent. The study and application of consultation theory and practice relevant to nursing. Emphasis on the refinement of knowledge and skills necessary to establish a nursing role as an interdependent clinical nursing consultant. The concepts presented are based on those theories from the following areas: group dynamics, learning, communication, change, and nursing process.

Ms. van Servellen and the Staff

**475. Human Relations in Administration.** A systematic study of the principles of human relations in administration, with emphasis on their application to the field of nursing.

**478A-478B. Seminar in Nursing Administration.** Discussion, four hours; laboratory, eight hours. Prerequisite: consent of instructor. In-depth discussion of key issues affecting nursing administration (e.g., classification of patients by nursing care need, impact of nursing registries on hospital nursing programs, certification of nurses for advanced clinical practice, quality assurance, legislative issues, emerging organizational forms for delivering nursing care, extended nursing roles). The course focuses on the integration of nursing and management theories for application in nursing service settings. Seminars are augmented by field visits to residency sites to complete data collection for projects.

Ms. Marsden, Ms. Scalzi

## Special Studies

**596. Directed Individual Studies for Graduate Students (4 to 8 units).** Prerequisite: consent of instructor. Opportunity for graduate students in nursing to pursue special research interests. May be repeated for credit, but only four units may be applied toward the M.N. degree requirements. S/U grading.

**597. Individual Study for Comprehensive Examination (4 to 8 units).** Individual study for comprehensive examination. May be repeated once for credit, but only four units may be applied toward the M.N. degree requirements. S/U grading.

**598. Research for Thesis (4 to 8 units).** Prerequisite: consent of instructor. May be repeated for credit, but only four units may be applied toward the M.N. degree requirements. S/U grading.

# School of Public Health

Roger Detels, Dean



# 17

Public health is that field of the health sciences which is concerned with understanding, controlling, and preventing disease, and with promoting health in populations. Its goal is to ensure that the protection and improvement of public health is accomplished by the most efficient and effective means consistent with equity for all individuals.

The mission of the UCLA School of Public Health is to develop, integrate, and apply pertinent knowledge from the biological, physical, and social sciences to enhance community health. In this context health is defined as a positive condition requiring not only the control of disease but also the presence of sufficient physical and mental vigor to promote well-being and improve the quality of life. To fulfill this mission the school (1) provides education for future public health professions, (2) conducts research to define, protect, and improve health and health services, and (3) contributes knowledge, expertise, and service to the community.

There are five core areas of study: epidemiology, concerned with the nature, extent, and distribution of disease and health in populations; biostatistics, which develops statistical and analytic techniques for public health use; environmental and occupational health sciences, which elucidates health hazards in the general environment and in the workplace; health services, concerned with the organization, quality, and distribution of health care; and behavioral sciences/health education, concerned with the study and implementation of behavior which prevents disease and enhances health. In addition, the school offers strong programs that focus on nutrition and health, and promotion of health in high-risk groups such as women, children, the poor, and the culturally disadvantaged.

Students are prepared for careers in professional public health in the public and private sector, in health agencies, hospitals, industry, and voluntary organizations, as well as for careers in research and teaching.

# School of Public Health

16-071 Public Health, 825-5516

## Professors

Abdelmonem A. Afifi, Ph.D. (*Biostatistics*)  
 Roslyn B. Alfin-Slater, Ph.D. (*Nutritional Sciences*)  
 Lawrence R. Ash, Ph.D. (*Infectious and Tropical Diseases*), *Chair and Associate Dean*  
 Allan Ralph Barr, Sc.D. (*Infectious and Tropical Diseases*)  
 Judith Blake, Ph.D. (*Fred H. Bixby Professor of Population Policy*)  
 Lester Breslow, M.D., M.P.H. (*Health Services*)  
 Robert H. Brook, M.D., Sc.D. (*Health Services*)  
 Potter C. Chang, Ph.D. (*Biostatistics*)  
 Virginia A. Clark, Ph.D. (*Biostatistics*)  
 Irvin Cushman, M.D., M.P.H. (*Population and Family Health*)  
 Roger Detels, M.D., M.S. (*Epidemiology*), *Dean*  
 Wilfrid J. Dixon, Ph.D. (*Biostatistics*)  
 John Edmond, Ph.D. (*Nutritional Sciences*)  
 Robert M. Elashoff, Ph.D. (*Biostatistics*)  
 Jonathan E. Fielding, M.D. (*Health Services*)  
 Donald Guthrie, Ph.D., in Residence (*Biostatistics*)  
 Derrick B. Jelliffe, M.D., D.T.M.&H., D.C.H., F.R.C.P. (*Population and Family Health*)  
 Robert I. Jennrich, Ph.D. (*Biostatistics*)  
 Robert L. Kane, M.D., in Residence (*Health Services*)  
 Snehenhu B. Kar, M.Sc., Dr.P.H. (*Behavioral Sciences and Health Education*)  
 Alfred H. Katz, D.S.W., M.A. (*Population and Family Health*)  
 Joel D. Kopple, M.D., in Residence (*Nutritional Sciences*)  
 Jess Kraus, Ph.D. (*Epidemiology and Occupational Health*)  
 Charles E. Lewis, M.D., Sc.D. (*Health Services*)  
 Virginia C. Li, M.P.H., Ph.D. (*Behavioral Sciences and Health Education*)  
 Robert A. Mah, Ph.D. (*Environmental and Occupational Health Sciences*)  
 Frank J. Massey, Jr., Ph.D. (*Biostatistics*)  
 James F. Mead, Ph.D. (*Nutritional Sciences*)  
 Beverlee Myers, M.P.H. (*Health Services*)  
 Alfred K. Neumann, M.D., M.A., M.P.H., F.A.B.P.M. (*Population and Family Health*)  
 Charlotte G. Neumann, M.D., M.P.H. (*Population and Family Health*)  
 Dennis D. Pointer, Ph.D. (*Health Services*)  
 Edward L. Rada, Ph.D. (*Behavioral Sciences and Health Education*)  
 Milton I. Roemer, M.D., M.P.H. (*Health Services*)  
 Max H. Schoen, D.D.S., Dr.P.H. (*Health Services*)  
 Stuart O. Schweitzer, Ph.D. (*Health Services*)  
 William Shonick, Ph.D. (*Health Services*)  
 Marian E. Swendseid, Ph.D. (*Nutritional Sciences*)  
 Paul R. Torrens, M.D., M.P.H. (*Health Services*)  
 David H. Wegman, M.D. (*Environmental and Occupational Health Sciences*)  
 James L. Whittenberger, M.D., in Residence (*Environmental and Occupational Health Sciences*)  
 Daniel M. Wilner, Ph.D. (*Behavioral Sciences and Health Education*)  
 Telford H. Work, M.D., M.P.H., D.T.M.&H. (*Infectious and Tropical Diseases*)  
 Ruth Boak, Ph.D., M.D., Emeritus  
 John M. Chapman, M.D., M.P.H., Emeritus  
 Olive Jean Dunn, Ph.D., Emeritus  
 Carl E. Hopkins, Ph.D., M.P.H., Emeritus  
 Raymond J. Jessen, Ph.D., Emeritus

Edward B. Johns, Ed.D., Emeritus  
 Ralph W. McKee, Ph.D., Emeritus  
 John F. Schacher, Ph.D., Emeritus  
 Frank F. Tallman, M.D., Emeritus

## Associate Professors

Emil Berkanovic, Ph.D. (*Behavioral Sciences and Health Education*)  
 Linda B. Bourque, Ph.D. (*Epidemiology; Population and Family Health*)  
 Albert Chang, M.D., M.P.H. (*Population and Family Health*)  
 Shan Cretin, Ph.D., M.P.H. (*Health Services*)  
 William G. Cumberland, Ph.D. (*Biostatistics*)  
 Climis A. Davos, Ph.D. (*Environmental and Occupational Health Sciences*)  
 Curtis D. Eckhart, Ph.D., Acting (*Nutritional Sciences*)  
 Ralph R. Frerichs, D.V.M., Dr.P.H. (*Epidemiology*)  
 John Froines, M.S., Ph.D., Acting (*Environmental and Occupational Health Sciences*)  
 Michael S. Goldstein, Ph.D. (*Behavioral Sciences and Health Education*)  
 Sheldon Greenfield, M.D. (*Health Services*)  
 William C. Hinds, Sc.D. (*Environmental and Occupational Health Sciences*)  
 Isabelle F. Hunt, Dr.P.H. (*Nutritional Sciences*)  
 Mohammad G. Mustafa, Ph.D. (*Environmental and Occupational Health Sciences*)  
 Susan C. Scrimshaw, Ph.D. (*Population and Family Health*)  
 Jane L. Valentine, Ph.D. (*Environmental and Occupational Health Sciences*)  
 Barbara R. Viisscher, M.D., Dr.P.H. (*Epidemiology*)

## Assistant Professors

Dean B. Baker, M.D., M.P.H. (*Epidemiology*)  
 E. Richard Brown, Ph.D. (*Behavioral Sciences and Health Education*)  
 James M. Cameron, Ph.D. (*Health Services*)  
 Joseph S. Coyne, Ph.D. (*Health Services*)  
 Virginia F. Flack, Ph.D. (*Biostatistics*)  
 Sander Greenland, Dr.P.H. (*Epidemiology*)  
 Robert W. Haile, Dr.P.H. (*Epidemiology*)  
 Philip I. Harber, M.D., M.P.H. (*Epidemiology*)  
 Michael R. Jones, Ph.D. (*Nutritional Sciences*)  
 Marlene Lugg, Ph.D. (*Health Services*)  
 Glenn A. Melnick, Ph.D. (*Health Services*)  
 Donald E. Morisky, Sc.D., M.S.P.H. (*Behavioral Sciences and Health Education*)  
 Gary A. Richwald, M.D., M.P.H. (*Population and Family Health*)  
 Martin B. Ross, Dr.P.H. (*Health Services*)  
 Judith M. Siegel, Ph.D., M.S.Hyg. (*Behavioral Sciences and Health Education*)  
 John Sullivan-Bolyai, M.D., M.P.H. (*Epidemiology; Pediatrics*)  
 Michael A. Vojtecky, Ph.D., M.P.H. (*Behavioral Sciences and Health Education*)

## Lecturers

Jean L. Mickey, Ph.D. (*Biostatistics*)  
 Florence C. McGucken, M.S., Emeritus

## Adjunct Professors

Ellen Alkon, M.D., M.P.H.  
 Edith M. Carlisle, Ph.D. (*Nutritional Sciences*)  
 Arthur Chung, M.D.  
 Brian E. Henderson, M.D.  
 Leona M. Libby, Ph.D. (*Environmental and Occupational Health Sciences*)

Thomas Mack, M.D., M.P.H. (*Epidemiology*)  
 John M. Peters, M.D., M.P.H., Sc.D.  
 Ruth J. Roemer, J.D.  
 Jack Zusman, M.D., M.P.H.

## Adjunct Associate Professors

Linda Beckman, Ph.D., M.S.  
 Davida Coady, M.D., M.P.H.  
 Sigrid Deeds, Dr.P.H., M.P.H.  
 Edward J. Faeder, Ph.D. (*Environmental and Occupational Health Sciences*)  
 Raymond D. Goodman, M.D., M.P.H.  
 Richard L. Hough, Ph.D.  
 Juel Janis, Ph.D.  
 Jacqueline B. Kosecoff, Ph.D. (*Health Services*)  
 Gary H. Spivey, M.D., M.P.H. (*Epidemiology*)  
 Forest Tennant, M.D., Dr.P.H., M.P.H.

## Adjunct Assistant Professors

William Dritschilo, Ph.D. (*Environmental and Occupational Health Sciences*)  
 Daniel Ershoff, Dr.P.H.  
 James Greenwood, Ph.D., M.P.H.  
 Wilbert Jordan, M.D., M.P.H.  
 John H. Kurata, Ph.D., M.P.H.  
 Laura M. Lake, Ph.D. (*Environmental and Occupational Health Sciences*)  
 Alfred C. Marcus, Ph.D.  
 Edward J. O'Neill, M.D., M.P.H. (*Environmental and Occupational Health Sciences*)  
 Susan M. Preston-Martin, Ph.D., M.P.H.  
 Jose Quiroga, M.D.  
 Lawrence S. Rubenstein, Ph.D.  
 James W. Sayre, Dr.P.H. (*Biostatistics*)  
 Bernard M. Siegel, M.D.  
 Bart B. Sokolow, D.Env. (*Environmental and Occupational Health Sciences*)  
 Howard M. Staniloff, M.D., M.P.H.  
 Jeremy M.G. Taylor, Ph.D. (*Biostatistics*)  
 Jeffrey B. Wales, Ph.D.  
 Fred W. Wasserman, Dr.P.H.

## Adjunct and Visiting Lecturers

Omar Alfi, M.D., Visiting  
 Nancy H. Allen, M.P.H., Adjunct  
 Arnold R. Beisser, M.D., Adjunct  
 Linda M. Blanchard, M.P.H., Adjunct  
 Stewart Blumenfeld, Dr.P.H., Visiting  
 Michael L. Bobrow, B.Arch., Visiting  
 Helene G. Brown, B.S., Visiting  
 Wen Ping Chang, M.D., M.P.H., D.M.Sc., Visiting  
 Roger Clemens, Dr.P.H., Visiting  
 Carl F. Coffelt, M.D., M.P.H., Visiting  
 Anne H. Coulson, Adjunct  
 Warren Ray, M.D., Visiting  
 Patricia Engle, Ph.D., Visiting  
 Charles M. Ewell, Jr., Ph.D., Visiting  
 Arlene Fink, Ph.D., Adjunct  
 Paul M. Fleiss, M.D., M.P.H., Visiting  
 Jay W. Friedman, D.D.S., M.P.H., Adjunct  
 Pensri Guptavani, M.D., Ph.D., Adjunct  
 Joseph Hafey, M.P.H., B.A., Visiting  
 Eung-Soo Han, M.D., M.P.H., Visiting  
 Arthur C. Hollister, Jr., M.D., M.P.H., Visiting  
 Patrice Jelliffe, R.N., M.P.H., Adjunct  
 Olive G. Johnson, B.A., Visiting  
 Martine Jozan, M.D., Dr.P.H., Adjunct  
 Stephen W. Kahane, D.Env., Visiting (*Environmental and Occupational Health Sciences*)  
 Joel W. Kovner, Dr.P.H., Visiting

Martin L. Lee, Ph.D., *Visiting*  
 Harry M. Lieberman, M.D., M.P.H., *Visiting*  
 Robert G. Lindberg, Ph.D., *Adjunct (Environmental and Occupational Health Sciences)*  
 Ronald L. Linder, Ed.D., *Adjunct*  
 Lawrence S. Linn, Ph.D., *Adjunct*  
 Irvin Lourie, M.D., *Visiting*  
 Mary Marazita, Ph.D., *Adjunct*  
 Eric J. McLaughlin, Ph.D., *Visiting*  
 Paul M. Merifield, Ph.D., *Visiting (Environmental and Occupational Health Sciences)*  
 Norma J. Murphy, M.S., *Adjunct (Nutritional Sciences), Assistant Field Program Supervisor*  
 Joseph P. Newhouse, Ph.D., *Visiting*  
 Mario Panaqua, B.A., *Adjunct*  
 Stanton J. Price, Dr.P.H., *Visiting*  
 George W. Prichard, J.D., M.D., M.P.H., *Visiting*  
 Ruth F. Richards, M.P.H., M.A., B.A., *Adjunct (Behavioral Sciences and Health Education), Field Program Supervisor*  
 Stephen J. Robinson, M.D., M.P.H., *Visiting*  
 Hossain Ronaghy, M.D., *Visiting*  
 Michael G. Ross, M.D., *Visiting*  
 Robert R. Rygg, B.S., *Visiting (Health Services)*  
 Frederick T. Sai, M.B.B.S., D.T.M.&H., M.R.C.P., M.P.H., *Visiting*  
 Rafatollah Salimpour, M.D., *Visiting*  
 Simon A. Sayre, M.D., M.S.P.H., *Adjunct*  
 Charles Senn, M.S.P.H., *Visiting*  
 Clive J. Shift, Ph.D., *Visiting*  
 Marc Strassberg, Dr.P.H., *Visiting*  
 Pamela Viele, M.P.H., *Adjunct*  
 Stephen L. Volla, M.P.H., *Visiting*  
 John E. Ware, Ph.D., *Adjunct*  
 Lawrence G. Wayne, Ph.D., *Visiting*  
 Paul F. Wehrle, M.D., *Visiting*

The School of Public Health no longer offers a bachelor's degree. Students enrolled in an undergraduate program prior to Fall Quarter 1983 will continue under 1982-83 regulations for the degree.

The school offers graduate programs leading to both academic and professional degrees in public health and biostatistics and is responsible for the administration of the graduate program in Environmental Science and Engineering, whose description immediately follows the public health programs.

### Degrees Offered

|   |                              |
|---|------------------------------|
| Biostatistics .....                         | M.S., Ph.D.                  |
| Environmental Science and Engineering ..... | D.Env.                       |
| Preventive Medicine and Public Health ..... | M.S.*                        |
| Public Health .....                         | M.P.H., M.S., Dr.P.H., Ph.D. |

\*Not accepting new students at this time.

## Requirements for Graduate Degrees

### Admission

Application forms and the *Announcement of the UCLA School of Public Health*, as well as descriptive brochures and applications for the Environmental Science and Engineering Program, may be obtained by writing to the Office

of Student Affairs, UCLA School of Public Health, Los Angeles, CA 90024. Both the School of Public Health Application for Admission to Graduate Status and the Graduate Division application must be completed. Three letters of recommendation are required, two from former professors and one from an employer (if no employer, three former professors) before an application is considered complete. It is your responsibility to ensure that the application file is complete.

The published deadline for graduate applications is January 14, 1985, for Fall Quarter 1985 admission. Applications received after the deadline will have considerably 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. Except for the Division of Population and Family Health, prior field experience is not required as a condition of admission, although a background of public health experience may be considered in your evaluation. In addition, you must be accepted by and accommodated in the division of the Department of Public Health in which you wish to study. If you need help in deciding on a division, you should speak to the staff in the Office of Student Affairs.

Applicants to the School of Public Health must perform satisfactorily on a recent GRE, MCAT, or DAT Aptitude Test. Refer to the *UCLA Application for Graduate Admission, Fellowship and Financial Aid* for the Test of English as a Foreign Language (TOEFL) requirement for foreign applicants. Applicants at the master's level require a minimum combined (verbal and quantitative) score of 1100. Applicants at the doctoral level need a minimum combined (verbal and quantitative) score of 1200. The analytical section is not required. If you are applying to the Biostatistics Program, contact that division. No screening examination is required for admission; however, specified courses are required by the Biostatistics, Environmental and Occupational Health Sciences, and Nutritional Sciences Divisions (see below). If your undergraduate coursework has been deficient in breadth of fundamental training, you will have to take specified undergraduate courses after admission.

### Master's Applicants

In addition to the above general requirements, you must also have satisfied one of the following requirements for admission to the master's curriculum:

- (1) Graduation with a bachelor's degree from an approved college or university and/or
- (2) Graduation with a doctoral degree from an approved professional or other health-related school.

Your prior program of study should include adequate preparation in mathematics, physical

sciences, biological sciences, and social sciences, and typically include two courses each in mathematics, biological sciences, social sciences; one course in physical sciences; and others that constitute an adequate preparation for the proposed area of specialization.

If your prior work in the biological, physical, mathematical, and social sciences does not constitute adequate preparation for your proposed area of specialization, you must include courses in those sciences in your graduate program; these may not be applied toward the minimum requirements for the degree.

### Specific Concentration Requirements

(1) Students concentrating in environmental and occupational health sciences should have a bachelor's (or master's) degree in chemistry, physics, biology, engineering, or other appropriate field. Coursework should include 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.

(2) Students whose field of concentration is to be nutritional sciences should have a bachelor's degree in biological or chemical sciences or an appropriate field, and three quarters of general chemistry (including quantitative analysis), three quarters of organic chemistry and/or biochemistry, mathematics through calculus, three quarters of biological sciences (including one quarter of bacteriology and microbiology), and two quarters of physics.

(3) Applicants interested in the health services management program in the Division of Health Services must be interviewed by a member of the faculty of the program. Prior to enrollment, you must demonstrate a basic competency in accounting either by taking an introductory accounting course or by passing a waiver examination administered by the program.

(4) Applicants interested in the population and family health program must have some prior experience in the health field (paid or volunteer).

(5) For admission to the Master of Science in Biostatistics program, you 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 the equivalent.

## Master of Public Health

The M.P.H. is a professional degree in the field of public health. You are expected to focus on public health practice and to acquire a broad knowledge related to professional skills.

## Course Requirements

You must complete at least one year of graduate residence at the University of California and a minimum of 11 full courses, 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 may be required for the degree.

Mandatory core courses include Public Health 100A or 101A, 112 (114 for epidemiology majors), 130, and 150 or 155. Each core course may be waived if you have taken a similar course elsewhere and can pass the waiver examination.

In addition to the core courses, at least three courses (two or four units) outside your area of specialization are strongly recommended.

Only courses in which you receive a grade of C- or better may be applied toward the requirements for a master's degree. You 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.

## Areas of Specialization

Areas of specialization and typical course plans, in addition to mandatory courses, are listed below.

### Behavioral Sciences and Health Education

Public Health 182, 482 (eight units), and five courses (20 units) from 282, 287, 296, 481, and 484 are required. In addition, two to three elective courses from the list of specialty areas are required. Individual and experimental courses may not be applied toward the required course units. Additional courses may be elected, in consultation with your faculty adviser, from within the department or in other schools/colleges at UCLA. Normally two years or six quarters are needed to complete the course requirements. Candidates with a prior doctoral degree or advanced preparation in a related field may complete an M.P.H. degree in one year. In addition, it is possible for students to elect an additional area of concentration in another division.

### Biostatistics

Required courses include Public Health 100A, 100B, 100C, and 100D, or 101A, 101B, and 101C; 200A; 401E or 401F; 402A, 402B (satisfies the field training requirement); three courses from 403, 404, 405, 406. Courses 211A and 211B are recommended. Elective courses should be selected in public health, biostatistics, or mathematics.

### Environmental and Occupational Health Sciences

Required courses include Public Health 150, 153 (required for students who have not taken a course in microbiology), 154, 156, 253A, 255 and 256 (may be repeated for credit), 261A, 400. Elective courses should be selected in your area of specialization and in public health, engineering and applied science, chemistry, biology, management, architecture and urban planning, and medicine.

After, or simultaneous with, fulfillment of the core (divisional and schoolwide) requirements, you take courses with emphasis in water quality; environmental management; air pollution; environmental epidemiology; environmental sciences and engineering; industrial hygiene; or environmental toxicology.

Students specializing in the environmental epidemiology track should substitute courses 114 and 211A (prerequisites for advanced epidemiology courses) for course 112 (see M.P.H. course requirements). Course 110 must be taken concurrently with course 114 unless the waiver examination is passed.

In addition to the required comprehensive examinations, you must take cumulative examinations on current environmental health topics. An examination will be offered once per quarter. Of a total of six attempts, you must pass three.

### Epidemiology

*Methodology/Chronic Diseases:* Required courses include Public Health 100B, 210, 211A, 211B, 400 (for predoctoral students), 596 (for postdoctoral students), two or four units in behavioral sciences, and two additional courses from 211C, 212E, 212G, 212I, 212J, 213, 215A, 215B, 217, 221, 223, 225, 226, 227, 410A, 410B, 414. (Physicians and other postdoctoral students in an appropriate biomedical science may petition for waiver of course 400.) You must submit a report demonstrating competence in epidemiologic methodology.

*Infectious and Tropical Diseases:* Required courses include Public Health 100B, 210, 211A, 211B, 212H, 216A, 216B, 218A, 218B, 220A, 220B, 222 (must be taken each quarter), 400 (for predoctoral students), 596 (for postdoctoral students). Doctoral students holding a doctorate in an appropriate biomedical science may petition for waiver of course 400. You must submit a report on a project related to infectious and tropical diseases.

### Health Services

*Health Services Management:* Management of organizations that deliver personal health care services, including hospitals, mental health and long-term care facilities, clinics, HMOs, and other health service providers. Admission to the program requires one course in

accounting; prior coursework in management theory, economics, and statistics is highly recommended. Required courses include Public Health 131, 133, 139, 400, 431, 432, 433, 434, 437, 443D, 596. Courses 134, 232, 443E, Management 260B, 411 are recommended. Elective courses are selected in consultation with your faculty adviser.

Students are admitted only in Fall Quarter. After three quarters of academic coursework, you are placed in an administrative residency for nine and one-half months and return to campus for coursework the Spring Quarter prior to graduation. Residencies are offered by various types of local health care facilities; students receive a stipend of \$1,200 – \$1,300 per month.

Interested students should request the program announcement by calling 825-5773.

*Health Services Organization:* An M.P.H. is available as a one-year program for students with prior doctoral degrees. Recommended courses are determined on an individual basis. No summer internship is required.

*Health Information Systems* is a two-year program with individually determined requirements for students interested in the design, implementation, management, and evaluation of data systems in a wide range of health and health-related organizations. A summer internship is required.

### Nutritional Sciences

Emphasis is on community nutrition. Required courses include Chemistry 152 or Biological Chemistry 101A and 101B, Public Health 165 or 261A, 260E, 260F, 260G, 260H, 262 or 263 (may be repeated for credit), 400, 460, 461, 463A, 463B. Public Health 162, 163, 167, 264E, 264F, 462 are recommended. Electives should be selected from Public Health 100B, 100C, 166A, 166B, 181, 270, Biology CM156, 177.

Of the courses listed above, at least six graduate courses (at least two must be in the 400 series) and at least one seminar course (262, 263) are required.

A minimum of 56 units is required. It is expected that after the first quarter you will take a seminar each quarter (except for the quarter in which courses 400 and 463B are taken).

### Population and Family Health

Emphasis is on population, family health and family planning, reproductive and women's health, family health (including maternal and child health, genetic counseling), international health (including nutrition). You are required to complete at least 16 units (for health professionals) or 20 units (for generalists) of divisional courses offered in selected tracks, plus Public Health 125, 171A, 400, 596. Elective courses are selected in consultation with your faculty adviser.

Students without a professional health degree are required to complete at least 60 units for the M.P.H. degree; students with a professional degree may graduate with a minimum of 48 units.

Students admitted to the genetic counseling specialized curriculum must take 72 units, including certain courses outside the department, and three quarters of fieldwork in the second year.

### Comprehensive Examinations

You must pass two comprehensive examinations, one in the area of specialization, and a centrally administered written examination in the general field of public health. If you fail either examination, you may be reexamined once.

The schoolwide core course comprehensive examination is administered twice each academic year, usually the first Saturday in May and November. The examination in the major field is administered by your division. Students in the Environmental and Occupational Health Sciences Division undertake cumulative examinations on current environmental health topics in addition to the above examinations (an examination will be offered once every quarter). Out of a total of six attempts, you must pass three cumulative examinations.

### Field Training

Field training in an approved public health program is required of candidates who have not had prior relevant field experience. A minimum of four units, but no more than eight, is required.

### Interdivisional International Health

The school offers several options for foreign or domestic students interested in international health. Faculty in all divisions of the school are actively involved in health-related programs in foreign settings, and many departments on campus have international, health-related interests and courses relevant to health occupations in cross-cultural settings.

If you are interested, specify the division most relevant to your skills area on your application, clearly indicating your international interests. You will be given an appropriate adviser and directed to the international health committee, which is interdivisional and promotes internationally oriented training and research. Its members consult with interested students and attempt to optimize the learning experience.

### Cooperative Degree Programs

Following are descriptions of combined programs of study leading to the M.P.H. 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 you can work sequentially for the master's degree in African area studies and a master's degree in public health. By planning the major field emphasis in public health while working toward the M.A. degree 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, African Studies Center, UCLA, Los Angeles, CA 90024, or to the Office of Student Affairs, UCLA School of Public Health, Los Angeles, CA 90024.

### 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, Latin American Center, UCLA, and/or the Public Health/Latin American Studies Articulated Degree Program Adviser, School of Public Health.

### M.B.A./M.P.H.

The School of Public Health, Division of Health Services, and the 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 and who wish in-depth professional preparation for such a career. The program reflects the combined interest of employers, faculty, and students who have recognized the increasing challenges facing managers in the health care industry and the need for individuals who are skilled in dealing with these challenges. Students should request all application materials from the M.B.A. Admissions Office, Graduate School of Management.

### Preventive Medicine Residency Program

An accredited residency in general preventive medicine is available to physicians through the School of Public Health. The residency is designed to prepare qualified physicians for leadership roles in public health practice and preventive medicine teaching and research. Com-

pletion of the program can lead to board eligibility in public health and general preventive medicine — a specialty recognized by the American Board of Preventive Medicine.

The residency currently consists of at least two years of academic training and supervised field training in preventive medicine. The first year is comprised of formal studies for the Master of Public Health (generally in either epidemiology or health services). Other areas may be considered on an individual basis. Application must be made simultaneously for both the residency and admission to the School of Public Health for the M.P.H.

The field training year is individually organized for each resident's particular interests and needs. A variety of opportunities is available at UCLA and in the Los Angeles area, including close working relationships with the Los Angeles County Department of Health Services, the UCLA Center for Health Enhancement, and the Comprehensive Cancer Center. Residents may also undertake studies toward qualification for a more advanced degree in public health — the Dr.P.H. or Ph.D. — or do research in collaboration with members of the faculty. Physician applicants who have completed M.P.H. studies at an accredited school of public health may be admitted directly into the field training year. For further information, contact the Office of Student Affairs, School of Public Health.

## Master of Science in Public Health

The Master of Science program provides research orientation within the general field of public health. It includes the preparation of a thesis or major written report.

### Course Requirements

You must complete at least one year of graduate residence at the University of California and a minimum of ten 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. Public Health 597 may not be applied toward the degree requirements. No more than 18 full courses may be required for the degree.

Mandatory core courses include Public Health 100A, 100B, and 112 (114 for epidemiology majors). Each core course may be waived if you have taken a similar course elsewhere and can pass the waiver examination.

Only courses in which you receive a grade of C- or better may be applied toward the requirements for a master's degree. You 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.



## Areas of Specialization

Areas of specialization and typical course plans, in addition to mandatory courses, are listed below.

### Behavioral Sciences and Health Education

Public Health 181, 182, 281, and four to six divisional core courses (selected from an approved list) are usually required. Electives, selected in consultation with an adviser, must include the Public Health 283 series and research methods courses. Normal program length is six quarters.

### Environmental and Occupational Health Sciences

Required courses usually include Public Health 150, 153 (required for students who have not had a course in microbiology), 154, 156, 253A, 255 and 256 (may be repeated for credit), 261A, 598 (a maximum of one course may be applied toward the minimum total course requirement), one course in biological chemistry (a specific course may be listed in the specialty track area). Elective courses should be selected in your area of specialization and in public health, biological chemistry, physical sciences, engineering and applied science, chemistry, biology, microbiology, law, and pharmacology.

At least five of the approximately 13 courses must be graduate level (200 and 500) courses. In addition, you must complete a laboratory project and thesis.

After, or simultaneous with, fulfillment of the core (divisional and schoolwide) requirements, you take courses with emphasis in water quality; environmental management; air pollution; environmental epidemiology; environmental sciences and engineering; industrial hygiene; or environmental toxicology.

Students specializing in the epidemiology track should substitute courses 114 and 211A (prerequisites for advanced epidemiology courses) for course 112 (see M.S. course requirements). Course 110 must be taken concurrently with course 114 unless the waiver examination is passed.

In addition to the completion of the master's thesis, you are required to take cumulative examinations on current environmental health topics.

### Epidemiology

*Methodology/Chronic Diseases:* Required courses usually include Public Health 210, 211A, 211B, 221, plus one full course in each of demography, biostatistics, data management, and topic specific epidemiology (courses 116, 212E, 212G, 212H, 212I, 212J, 213, 214, 215A, 215B, 225, 226, or others). Courses 130 (for students planning to enter the Dr.P.H. program or to practice epidemiology in

a health department), 410A, 410B are recommended. Relevant elective courses should be selected in public health and biomedical sciences.

*Infectious and Tropical Diseases:* Required courses usually include Public Health 210, 211A, 211B, 212H, 216A, 216B, 218A, 218B, 220A, 220B, 222 (must be taken each quarter). Course 130 (for students planning to enter the Dr.P.H. program or to practice epidemiology in a health department) is recommended. Electives should be selected from courses 116, 214, 219, and other relevant courses in public health and biomedical sciences.

### Health Services

Emphasis is on health planning, health policy analysis, health services research for clinicians.

*Planning:* Public Health 134, 138, 243, 248, 403, 444B, one course from the field of health financing, law, or public sector approved by your adviser, one evaluation course, three management courses, and a summer internship are usually required. Courses 100C, 100D, 131, 137, 139, 232, 233, 235, 238, 239, 240, 247, 281, 287, 430, 434, 438, 440A, 446, 447D, 447E, 447F are recommended.

*Policy Analysis:* Public Health 134, 138, 233, 238, 243, 403, one course from the field of health financing, law, or public sector approved by your adviser, one evaluation course, two management courses, and a summer internship are usually required. Courses 100C, 131, 137, 139, 181, 232, 235, 239, 240, 247, 281, 430, 434, 437, 438, 440A, 447D, 447E, 447F are recommended.

*Research:* Public Health 136A, 136B, 231, 232, 233, 234A-234B, 235, 238 are usually required. Courses 131, 134, 138, 236, 240, 446, 447D, 447E, 447F are recommended.

Electives, selected in consultation with your adviser, should be chosen from recommended courses and others. A summer field placement (minimum ten weeks) is required following the first three quarters of study. The equivalent of 18 full courses and six quarters in residence are required for completion of the M.S. degree.

### Nutritional Sciences

Emphasis is on nutritional biochemistry. Required courses usually include Biological Chemistry 101A or 201A, 101B or 201B, Public Health 260E, 260F, 260G, 260H, 261A, 261B, and 262 and 596 (may be repeated for credit). Public Health 162, 165, 264E, 264F are recommended. Elective courses should be selected from Physiology 100, Public Health 100C, 166A, 166B, 167, 181, 461, 462, Biology 177, Biological Chemistry M261.

You must complete a thesis. A minimum of 52 units is required. It is expected that after the first quarter you will take a seminar each quarter.

## Thesis Plan

If the thesis option is approved, a thesis committee is established. The committee approves the thesis prospectus before you file for advancement to candidacy. The thesis must be acceptable to the thesis committee.

### Comprehensive Examination/Report Plan

If the comprehensive examination/report option is approved, a guidance committee of three faculty members is appointed. A written comprehensive examination on your major area of study must be passed. If you fail, you may be reexamined once.

The preparation of a major written research report is required; it must be approved by the guidance committee which also must certify successful completion of all degree requirements.

## Master of Science in Biostatistics

### 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 in the 200 and 500 series. The five required graduate courses must be in biostatistics or mathematical statistics, including at least three courses in biostatistics.

### Areas of Specialization

Areas of specialization and typical course plans are listed below.

### Biostatistics

Unless previously taken, the following courses must be included in the degree program: Public Health 100C, 101A, 101B, 200A-200B-200C, 204E, 402A, 402B; any two courses from M201E, 201F, 201G, 201H, 201J, 201M; Mathematics 150A-150B-150C or 152A-152B.

Other courses in biostatistics or mathematical statistics, or in related areas such as biology, physiology, public health, management, or mathematics, may be selected with your adviser's consent.

A written report and written comprehensive examination covering the above course material are required.

### Statistical Health Data Management

Unless previously taken, the following courses must be included in the degree program: Computer Science 10C, Public Health 100C, 101A, 101B, 200A-200B-200C, 203A, 203B, 403, 404 or 405, Mathematics 150A-150B-150C or 152A-152B. One public health course in a division other than Biostatistics is to be selected with your adviser's consent.

Other courses in biostatistics or mathematical statistics, or in related areas such as biology, physiology, public health, management, or mathematics, are selected with your adviser's consent.

A written report and written comprehensive examination covering the above course material are required.

### **Comprehensive Examination Plan**

The thesis plan is not used. The written comprehensive examination is on your major field only. It is taken during the Spring Quarter of the academic year of your Public Health 200A-200B-200C sequence. Normally no more than one reexamination after failure is allowed.

## **Master of Science in Preventive Medicine and Public Health**

The program is not admitting new students at this time.

## **Doctor of Public Health**

The Doctor of Public Health (Dr.P.H.) is the highest professional degree for the public health generalist. You are expected to focus on public health practice and to acquire broad knowledge related to professional skills. The dissertation is of an applied, practical, problem solving nature and must demonstrate your ability for independent investigation.

There is no foreign language requirement; teaching experience is recommended but not required.

### **Admission**

In addition to the University minimum requirements, the department requires (1) satisfactory performance on the GRE; (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, you must have taken the equivalent of the M.P.H. mandatory core courses or include them in the course of study 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 a division of the Department of Public Health; (5) approval by the doctoral admissions committee and the department Chair. Screening or evaluation examinations may be required by each division.

### **Course Requirements**

The course requirements in the major field depend on the division and the field you select. You must take a minimum of six full graduate courses (200 or 400 series) in at least two divisions outside your major division.

The major division requires an additional area of concentration which may be either inside or outside the school. An equivalent field experience completed while a doctoral student and approved by the guidance committee may be substituted for the additional area of concentration.

### **Areas of Specialization**

Areas of specialization and typical course plans, in addition to courses required for the master's degree, are listed below.

#### **Behavioral Sciences and Health Education**

At least four advanced research methods/statistics courses from a list designed and offered by the division are required. Six full graduate courses (200 or 400 series) in at least two divisions other than your major division are required for breadth. Two quarters of research experience prior to beginning the dissertation are required, as is participation in the divisional doctoral seminar. Elective courses should be selected in consultation with your adviser.

#### **Biostatistics**

A written evaluation examination of all students entering the doctoral program from outside the division 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 your adviser and the division faculty. You are encouraged to participate in the biostatistics consulting laboratory for one quarter each year. Six full graduate courses (200 or 400 series) in at least two divisions other than your major division are required for breadth. The major division requires an additional area of concentration which may be either inside or outside the school.

Electives, selected in consultation with your adviser, should be chosen from courses in mathematics, biomathematics, survey research methods, operations research, computer data processing, and other appropriate areas.

#### **Environmental and Occupational Health Sciences**

Recommended courses are determined in consultation with your adviser. Six full graduate courses (200 or 400 series) in at least two divisions other than your major division are required for breadth. The major division 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; laboratory or clinical studies in medical, health, or biological sciences.

Six full graduate courses (200 or 400 series) in at least two divisions other than your major division are required for breadth. The major division 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**

From 48 to 72 quarter units beyond the master's degree are required. About one-third are to be in the substantive area of structure and functioning of health services, one-third in skills and tools required for health services management and policy analysis, and one-third in elective courses to meet individual needs and interests. In addition, if the master's degree did not include it, you must spend three to nine months in a supervised residency or practicum experience in one or more health-related organizations.

Six full graduate courses (200 or 400 series) in at least two divisions other than your major division are required for breadth. The major division requires an additional area of concentration which may be either inside or outside the school (e.g., economics, political science, sociology, management).

#### **Nutritional Sciences**

Recommended courses include Biological Chemistry 101A or 201A, 101B or 201B, Public Health 260E, 260F, 260G, 260H, 261A, 262 and 263 (may be repeated for credit), 400, 461, 462, 463A, 463B, 495, 596. Conversational Spanish is also recommended.

Six full graduate courses (200 or 400 series) in at least two divisions other than your major division are required for breadth. The major division requires an additional area of concentration which may be either inside or outside the school (e.g., biology, biostatistics).

#### **Population and Family Health**

Course content for the major field includes courses needed for the divisional M.P.H., the divisional 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 division, including the divisional doctoral seminar.

Six full graduate courses (200 or 400 series) in at least two divisions other than your major division are required for breadth. The major division requires an additional area of concentration which may be either inside or outside the school.

## Qualifying Examinations

Before advancement to candidacy, you must pass written examinations in the major field, prepared and administered by the guidance committee or by the faculty of the division. Normally no more than one reexamination after failure is allowed. The doctoral committee is nominated after you have made a tentative decision on a dissertation topic. The doctoral committee administers the University Oral Qualifying Examination after you have successfully completed the written examinations.

## Final Oral Examination

A final oral examination is required of all candidates.

## Ph.D. in Public Health

The Ph.D. is the highest research degree in public health for the student who desires in-depth knowledge in the area. Depth of knowledge and research skills are stressed. The dissertation must demonstrate your ability for independent scholarly investigation.

There is no foreign language requirement for the Ph.D.; teaching experience is recommended but not required.

## Admission

In addition to the University minimum requirements, the department requires (1) satisfactory performance on the GRE; (2) completion of the M.S. in Public Health or an appropriately related field (students with an M.P.H. will need to satisfy the 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 a division of the Department of Public Health; (5) approval by the doctoral admissions committee and the department Chair. Screening examinations may be required by each division.

In the Division of Behavioral Sciences and Health Education, you must satisfy the divisional core requirements for the M.P.H. or M.S. in Public Health (depending on your background) at a level acceptable for 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, environmental and occupational health sciences, epidemiology, health services, and nutritional sciences.

## Course Requirements

The courses needed to pass the written examination in your major field depend on the division and field you select.

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 division considered cognate to a major in public health.

## Qualifying Examinations

Before advancement to candidacy, you 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 you are ready to take the University Oral Qualifying Examination, a doctoral committee is nominated.

After passing the University Oral Qualifying Examination, you may be advanced to candidacy and commence work on a dissertation in your principal field of study. The doctoral committee guides your progress toward completion of the dissertation.

## Final Oral Examination

A final oral examination is required of all candidates.

## Ph.D. in Biostatistics

### Admission

Qualifications for admission are those currently specified by the Graduate Division (see Chapter 3). Normally, students receive an M.S. in Biostatistics at UCLA before admission to the Ph.D. program. Students who enter the Ph.D. program from other master's programs are required to pass a written evaluation examination within one year of admission.

### Course Requirements

There are no specific course requirements. However, your program of study must be approved by the Division of Biostatistics 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. You are encouraged to participate in the biostatistics consulting laboratory for one quarter each year. Recommendation for the degree is based on your attainments rather than on the completion of specified courses.

## Qualifying Examinations

The University Oral Qualifying Examination is taken before advancement to candidacy and after successful completion of the written examinations in biostatistics, mathematical statistics, and the selected third field. Administered by the doctoral committee, it is usually a

defense of the dissertation proposal. Normally no more than one reexamination after failure is allowed.

## Final Oral Examination

A final oral examination is required of all candidates.

## Doctor of Environmental Science and Engineering

The program leading to the D.Env. degree is administered and housed in the School of Public Health. Information on the program follows the public health course listings below.

## Lower Division Courses

**18. Principles of Healthful Living.** Analysis of health care issues as related to the health care consumer and the health care delivery system. Includes identification of health needs and clarification of personal responsibilities for health. Ms. Richards

**19. Peer Health Counselor Training.** Limited to students in the Peer Health Counselor Program. Analysis of student health care issues as related to the campus health care delivery system and to the health care consumer. Includes identification of health needs, determination of appropriate resources, delivery of preventive and self-care education, and delineation of peer health counselor's role. Ms. Vile

## Upper Division Courses

**100A. Introduction to Biostatistics.** Lecture, three hours; laboratory/quiz, two hours. Prerequisites: upper division standing and one course in biological or physical science. Students who have completed courses in statistics may enroll only by consent of instructor. Students with credit for course 101A will not receive credit for this course. Introduction to methods and concepts of statistical analysis. Sampling situations, with special attention to those occurring in the 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; laboratory/quiz, two hours. Prerequisites: course 100A or equivalent and consent of instructor. Students with credit for course 101B will not receive credit for this course. Introduction to analysis of variance, linear regression, and correlation analysis.

**100C. Introduction to Biostatistics.** Lecture, three hours; laboratory/quiz, two hours. Prerequisites: course 100B or equivalent and consent of instructor. Design of experiments, analysis of variance, multiple and polynomial regression analysis with biomedical applications.

**100D. Introduction to Biostatistics.** Lecture, three hours; laboratory, two hours. Prerequisites: course 100B or equivalent and consent of instructor. 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.

**101A. Basic Biostatistics.** Lecture, three hours; quiz, one hour. Prerequisite: Mathematics 31B or equivalent. Students with credit for course 100A will not receive credit for this course. Basic concepts of statistical analysis applied to biological sciences. Topics include random variables, sampling distributions, parameter estimator, statistical inference.

**101B. Basic Biostatistics.** Lecture, three hours; quiz, one hour. Prerequisite: course 101A. Students with credit for course 100B will not receive credit for this course. Topics include elementary analysis of variance, simple linear regression and correlation, nonparametric methods, elements of sequential analysis.

**101C. Basic Biostatistics.** Lecture, three hours; laboratory, two hours. Prerequisite: course 101B or equivalent. Students with credit for course 100C or 100D will not receive credit for this course. Introduction to multiple regression; topics relating to analysis of variance and experimental designs.

**103. Statistics for Public Health.** Lecture, three hours; laboratory, two hours. Prerequisites: upper division standing and one course in biological or physical science. Open to students in the M.P.H. and nursing programs. Introduction to sources of demographic and health information, methods of calculating and interpreting vital and health statistics, and elementary methods for statistical inference.

**110. Introduction to Medical Science.** Prerequisite: one course in chemistry or other natural sciences. Recommended: one-year sequence in biology, physiology, or other biological science. An introduction to normal human physiology and disease processes.

**112. Principles of Epidemiology.** Lecture, two hours; laboratory, four hours. Prerequisite: course 110. Students with credit for course 114 will not receive credit for this course. Introduction to epidemiology, including factors governing health and disease in populations.

**114. Epidemiology I.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 100A (may be taken concurrently), 110, consent of instructor. Students with credit for course 112 will not receive credit for this course. Introduction to epidemiology, including factors governing health and disease in populations.

**M115. Disease Problems of Socioeconomic and Political Impact in Latin America.** (Same as Latin American Studies M155.) Lecture, six hours; discussion, six hours. Prerequisite: one upper division course in Latin American studies. Social, economic, and political impact of important disease problems in Latin American countries. Mr. Work

**116. Epidemiology of Nosocomial Infections (2 units).** Prerequisites: course 112 or Microbiology 110 and consent of instructor. Introduction to the epidemiology of hospital-acquired infections, their detection and control. Mr. Sullivan-Bolyai

**125. Applied Social Science Methodology.** Prerequisites: course 100A or equivalent and consent of instructor. Applied procedures for conducting research in family health. A research design comprises one of the course requirements. Ms. Bourque

**130. Health Services Organization.** Prerequisite: four units of social science. Structure and function of American health care system; issues and forces shaping its future. Mr. Fielding, Mr. Torrens

**131. Structure and Function of Health Care Facilities.** Lecture, two hours; discussion, two hours. Prerequisites or corequisites: course 130, consent of instructor. Introduction to structure, organization, and function of health care facilities. Mr. Ross

**133. Interpersonal Dynamics in Health Services Management (2 units).** Prerequisites: one undergraduate course in sociology or psychology and consent of instructor. An introduction to the application of behavioral science theory to understanding the interpersonal dynamics of health care facilities and their management. Mr. Pointer, Mr. Ross

**134. Introduction to Comprehensive Health Planning.** Lecture, four hours; fieldwork, four hours. Prerequisite: one upper division course in microeconomics, statistics, calculus, or political science. Concepts underlying health planning, state of the art, and some relevant literature. Mr. Melnick

**M135. Organization of Medical Practice (2 units).** (Same as Medicine M158.) Prerequisites: course 130 and graduate standing in public health, medicine, or nursing. Education and certification of medical practitioners. Organization of medical practice: solo, group, HMO. Doctor-patient relationships, medical ethics, economics, professional liability, health care evaluations. Mr. Goodman

**136A. Introduction to Health Services Research.** Prerequisites or corequisites: courses 100A and 110 or equivalent, and consent of instructor. Review of the field of health services research. Uses of quantitative methods and the applications of conceptual-theoretical constructs (as well as methodologies) from social and behavioral sciences and epidemiology to studies of the workings of health services. Mr. Lewis

**136B. Practices of Evaluation in Health Services: Theory and Methodology.** Prerequisites: course 136A or equivalent and consent of instructor. Introduction to health services evaluation. Examine and perform specific evaluation procedures. Conduct health services investigations and evaluations; communicate results and methodologies. Ms. Fink, Ms. Kosecoff

**136C. Social Experimentation as a Research Tool for Health Care Policy.** Prerequisites: courses 136A, 136B, or equivalent, and consent of instructor. Economic and psychometric issues underlying social experimentation in health care. Topics include relation of demand to insurance; role of regulation; relation of health insurance to health status; reliability of health status; approach to measurement validation and scale construction. Mr. Greenfield, Mr. Newhouse, Mr. Ware

**137. Managing Human Resources in Health Facilities and Programs.** Prerequisites: one course in social science, consent of instructor. Didactic and experimental study of management of human resources in health-related organizations and programs. Mr. Ross

**138. Politics of Health Care.** Prerequisites: one course in social science, consent of instructor. Concepts and procedures for political analysis; national, state, and local politics in health care; examination of selected case studies. Mr. Cameron

**139. Quantitative Methods for Decision Making in Health Services.** Prerequisites: courses 100A, 110, 130, consent of instructor. Decision theory and use of statistics in decision making. Decision theory includes frameworks for decision making and control, decision under uncertainty, utility theory, Bayes' theorem, and value of information. Statistical topics include communicating with statistics, measures of association, regression, analysis of variance, and forecasting. Ms. Cretin

**140A-140B. Health Record Science.** Lecture, two hours; laboratory, two hours. Prerequisites: Biology 5 or equivalent and consent of instructor. Course 140A is prerequisite to 140B. Principles and theories of systems and techniques used for organization, analysis, and maintenance of records and reports are studied and evaluated according to their use in varied situations. Ms. Lugg

**141. Financial and Managerial Accounting for Health Services Organizations.** Prerequisites: course 130 or equivalent and consent of instructor. An introduction to financial and managerial accounting and its application to the health services industry. Mr. Coyne

**143. Integrating Medical and Fiscal Records in Health Institutions.** Prerequisites: course 140A, Management 403, or equivalent, and consent of instructor. The course explores the patient charge system from admission through collection. The interfacing of patient medical records and patient fiscal records is presented via a student field project. Mr. Baker, Mr. Harber, Mr. Wegman

**144. Decisions in Automating Data Systems in Ambulatory Patient Care Facilities.** Lecture, two hours; discussion, two hours. Prerequisites: courses 130, 140A. Definition of the techniques used to propose, design, and evaluate the automation of data systems for patient care and operations of ambulatory care facilities. Practical experience through analysis of a case problem.

**145. Society's Response to Aging.** Prerequisites: courses 130, 180, 183, or equivalent, and consent of instructor. Relationship of changing age structure in America to family, economy, politics, health care, retirement, age stratification, death and dying.

**150. Environmental Health.** Lecture, three hours; discussion, one hour. Prerequisites: Biology 5, Chemistry 11A, Mathematics 3A, Physics 3A or 6A. 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. Mr. Mustafa

**152. Biological Effects of Air Pollution.** Lecture, three hours; discussion, one hour. Prerequisites: Biology 5, Chemistry 11A, or equivalent, and consent of instructor. Survey of biological effects and assessment methods of air contaminants present in urban, industrial, and occupational environments. Mr. Mustafa

**153. Public Health and Environmental Microbiology.** Lecture, three hours; laboratory, six hours. Prerequisites: Biology 7, Chemistry 25, or equivalent, and consent of instructor. Basic principles and laboratory procedures employed in the provision of sanitary elements to the community, including food and milk, water supply and waste disposal, soil and environmental effluents. Mr. Mah

**154. Environmental Management.** Lecture, four hours; discussion, one hour. Prerequisites: Economics 100, Political Science 142 or 143, or equivalent, and consent of instructor. Introduction to foundations and principles of environmental management, decision making, and evaluation of environmental policies and programs. Mr. Davos

**155. Introduction to Environmental Health (2 units).** Prerequisites: one college course in chemistry or biology or equivalent courses and consent of instructor. Not open to students specializing in environmental health. Introduction to environmental health, including coverage of sanitary principles and chronic and acute health effects of environmental contaminants.

**156. Introduction to Occupational Safety and Health.** Prerequisites: Biology 5 and Chemistry 21, or equivalent, and consent of instructor. The course addresses scientific, legal, policy, and historical issues in occupational health and introduces students to various related disciplines (e.g., occupational medicine, nursing, industrial hygiene, toxicology, epidemiology, and health education). Two field trips are taken. Mr. Froines

**156B. Introduction to Occupational Health II.** Prerequisites: course 156 or equivalent, consent of instructor. Introduction to the health effects of occupational exposures, including the recognition, evaluation, and prevention of occupational diseases. Emphasis on concept of disease mechanisms, manifestations, and classification relevant to professionals in the disciplines related to occupational health (e.g., industrial hygiene, toxicology, epidemiology, health education, and nursing). One field trip is taken. Mr. Baker, Mr. Harber, Mr. Wegman

**157E. Properties and Measurement of Airborne Particles.** Lecture, three hours; laboratory, two hours. Prerequisites: one year of chemistry, physics, and mathematics (through calculus), consent of instructor. Basic theory and application of aerosol science to environmental health, including properties, behavior, sampling, and measurement of aerosols and quantitative problems. Laboratory is for industrial hygiene majors only. Mr. Hinds

**160. Principles of Food and Nutrition (2 units).** Prerequisites: one course in biology, chemistry, or physiology and consent of instructor. Not open for credit to students specializing in nutrition. Principles of nutrition and nutritional requirements for normal growth and development. Ms. Alfin-Slater

**161. Nutrition and Health (2 units).** Prerequisites: course 110 or 160 or equivalent and consent of instructor. Not open for credit to students specializing in nutrition. Basic and clinical nutrition theory and practice for students in health science curricula. Ms. Alfin-Slater, Mr. Jelliffe

**162. Nutrition.** Lecture, three hours. Prerequisites: organic chemistry, Biology 7, or equivalent. Metabolic aspects of carbohydrates, fats, proteins, vitamins, and minerals. Digestion and absorption of nutrients, energy and protein requirements, mineral and vitamin metabolism. Ms. Hunt

**163. Biologic Processes.** Lecture, three hours. Prerequisites: one year of organic chemistry, Biology 7. Metabolism of carbohydrates, proteins, and other nitrogen compounds and lipids; role of hormones and enzymes in metabolism; physiological processes. Ms. Alfin-Slater

**165. Clinical Nutrition Laboratory (2 units).** Discussion, one hour; laboratory, four hours. Prerequisites: one course in quantitative analysis or equivalent, one year of organic chemistry, Biology 7, consent of instructor. Analytical procedures for determining the various constituents of blood and urine. Mr. Eckhert

**166A. Therapeutic Nutrition (2 units).** Prerequisites: courses 162, 163, or equivalent, and consent of instructor. Recent findings in the field of diet and disease and modifications made in normal diet for pathological conditions. Ms. Carlisle

**166B. Therapeutic Nutrition (2 units).** Prerequisites: course 166A, consent of instructor. Recent findings in the field of diet and disease and modifications made in normal diet for pathological conditions. Ms. Carlisle

**167. Biologic Processes: Physiology and Nutrition.** Lecture, three hours. Prerequisites: course 163, consent of instructor. Metabolism of lipids, carbohydrates, and proteins; role of hormones and enzymes in metabolism; physiological processes occurring in various organs. Ms. Alfin-Slater

**170. Family Health and Biosocial Development.** Lecture, two hours; discussion, two hours. Prerequisites: Psychology 130 or Physiology 100 or equivalent and consent of instructor. Biosocial factors related to normal human physical, intellectual, and emotional growth and development from a family and public health perspective. Mr. Katz

**170E. Genetics and Public Health.** (Formerly numbered 170A.) Lecture, three hours; discussion, one hour. Prerequisites: one course in biology, consent of instructor. The public health significance of genetic disease, biological basis of genetic disease and birth defects, services available in the areas of diagnosis, treatment, and prevention, and the legal, social, and ethical implications of genetic disease. Mr. Alfi

**171A. Family Health and Population: Principles and Issues.** Prerequisites: course 110 or equivalent and consent of instructor. The course covers (1) biosocial aspects of family formation, reproductive physiology and behavior, "at risk" aspects of pregnancy and childbirth, and primary women's health care services and (2) physical aspects of growth, physical, intellectual, and social development from infancy to older childhood and adolescence. Ms. Roemer

**171B. Family Health and Population: Principles and Issues.** Prerequisites: course 171A, consent of instructor. The course covers (1) considerations of population growth, trends in domestic and international mortality, international migration, women's health issues, family planning and (2) child health issues in the U.S. and MCH/family problems, programs, and policy in developing Third World countries.

**172. Introduction to Reproductive Health.** Lecture, two hours; discussion, two hours. Prerequisites: course 110 or equivalent and consent of instructor. Review of reproductive physiology, normal and abnormal pregnancy, family planning, male-specific and female-specific health problems, including health care and psychosocial considerations.

**174E. Health, Disease, and Health Services in Latin America.** Prerequisite: one upper division course in Latin American studies or course 110. Introduction to health, disease, and health services in Latin America, with emphasis on epidemiology, health administration, medical anthropology, and nutrition. Ms. Scrimshaw

**174H. Public Health in the People's Republic of China (2 units).** Lecture, four hours. Prerequisites: course 130 or equivalent or two upper division or graduate courses in social or behavioral science or medical science and consent of instructor. Historical overview of policies and implementation of public health in the People's Republic of China from 1949 to the present. Emphasis on relevance for public health in other developing countries.

**176. Human Sexuality and Sexual Health.** Lecture, three hours; discussion, one hour. Prerequisites: two courses in behavioral and/or life science, consent of instructor. Interdisciplinary review of sexual physiology and sexual behaviors is followed by consideration of pregnancy and its prevention, sexual dysfunction, and sex-transmitted disease. Psychosocial, cultural, political, and health care aspects are included.

**176E. Family and Sexual Violence.** Lecture, three hours; field trip. Prerequisites: course 130, consent of instructor. The course examines rape, incest, spouse and elder abuse. The definitions, causes, outcomes of, and research on family and sexual violence, as well as the responses of the social service, medical, and criminal justice systems, are presented. Mr. Richwald

**177A. Principles of Genetic Counseling (2 units).** (Formerly numbered 177.) Prerequisites: course 170 or 171A, and Biology 8. Theoretical basis, current research, and practical considerations and techniques of counseling, especially as practiced in genetics settings. Mr. Katz

**177B. Principles of Genetic Counseling (2 units).** Prerequisite: course 177A. Counseling principles and techniques arising from such reproductive areas as prenatal care/diagnosis, abortion, adoption, sterilization. Counseling in relation to grief and mourning; theories underlying alternative counseling models pertinent to these areas. Mr. Katz

**177C. Principles of Genetic Counseling (2 units).** Prerequisites: courses 171A, 177A, consent of instructor. Evaluation of counseling process and outcome; clinical research; the counselor as a team worker; ethical and administrative issues. Mr. Katz

**178. Legal Aspects of Family Health (2 units).** Prerequisites: course 170, consent of instructor. Analysis and clarification of legal issues involving family health services, including family planning, sterilization, abortion, dental care for children, battered child laws, mental hospitalization, personnel and standards for care and implementation of sound health programs. Ms. Roemer

**179A. Health Problems and Programs in Africa (2 units).** Lecture, one hour; discussion, one hour. Prerequisites: one course from Public Health 110, History 175A-175Z, 176A, 176B, 177, 178A, 179A, 275, 278A, Anthropology M168, 171, 271, Political Science 166A, C250E, Geography 122, 188, 189, 288, 289, or equivalent, and consent of instructor. Consideration of traditional beliefs about illness and treatment, factors affecting health status in Africa, major health problems, and some programs proposed as remedies.

**179B. African Health Sector Analysis Seminar (2 units).** Prerequisite or corequisite: course 179A. Approach is that of a multidisciplinary team analyzing the health sector of a representative African country to determine needs and priorities for external aid.

**180. Introduction to Public Health.** Prerequisite: four units of life science. Principles of public health. Analysis of demographic, professional, organizational, fiscal, social, and research features. Covers health, mental health, environmental health, and consumer protection fields. Mr. Wilner

**181. Introduction to Social Research Methods in Health.** Lecture, four hours; assignments, eight hours. Prerequisites: course 100A or equivalent and consent of instructor. Basic methods and techniques in designing and conducting health research using a variety of methods. Includes discussions of students' own research plans.

**182. Behavioral Sciences and Health.** Lecture, three hours. Prerequisite: one course in social science. Basic concepts in behavioral sciences pertinent to health and medical care; cultural and social class variations in health status; health team and community relations; community decision making in public health. Mr. Goldstein, Mr. Kar

**183. Community Health Education.** Lecture, two hours; discussion, two hours. Prerequisites: one course in social science, consent of instructor. Problems of social, economic, and cultural origin as they apply to sound community organization in the public health field. Examination of health education activities of professional, voluntary, and official health agencies and analysis of their interrelationships.

**184. Health and Consumer Economics.** Lecture, three hours. Prerequisites: Economics 1 and 2, or 100, upper division or graduate standing. Impact of health problems and costs on individual and family incomes and expenditures, including productivity and dependency. Mr. Rada

**185. Economics of Health and Medical Care.** Lecture, three hours. Prerequisites: Economics 1 and 2, or 100, upper division or graduate standing. Demand, supply, and price determinants in private and public sectors of health and medical care fields. Mr. Rada

**186. The World's Population and Food.** Lecture, three hours. Prerequisites: Economics 1 and 2, or 100, upper division or graduate standing. World food sources; major food groups, human food requirements, and consumption; food in developing economies; international movement of foods; interrelations of foods, population, and economic progress. Mr. Rada

**187. Health Education for Teacher Credentials (2 units).** Limited to students in the teacher education credential program. Required for the California State Teaching Credential. The teaching-learning process as applied to personal and community health. Topics include psychoactive drugs (alcohol, tobacco, and narcotics), human sexuality, and community health resources. Mr. Linder

**188. Community Mental Health.** Prerequisites: one upper division course in psychology, sociology, or anthropology and consent of instructor. Concepts of mental health, mental illness, prevention of mental disorders, mental health in public health programs. Public health aspects of control of mental disorders. Epidemiology, program planning, and legal aspects of mental disorders.

**189. Community Cancer Education.** Lecture, two hours; discussion, one hour; fieldwork, one hour; reading assignments, one hour. Prerequisites: Biology 30 or equivalent and consent of instructor. Exploration of the process of cancer education through community resources, culminating in student-generated community field study proposal and presentation.

**199. Special Studies (2 to 4 units).** Prerequisites: senior standing, consent of instructor and department Chair (based on a written proposal outlining the 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 quarter.

## Graduate Courses

**200A-200B-200C. Biostatistics.** Lecture, three hours; discussion, one hour. Prerequisites: course 100C, Mathematics 32B, 152B, or equivalent (certain prerequisites may be taken concurrently or waived by consent of instructor). Quantitative methods in public health, medicine, and biological sciences; statistical theory and application to problems in design and analysis of medical experiments and surveys.

**M201E. Special Topics: Statistical Methods for Categorical Data.** (Same as Biomathematics M231.) Lecture, three hours; discussion, one hour. Prerequisites: course 100B or 101B, Mathematics 150C or 152B, or equivalent, and consent of instructor. Statistical techniques for the analysis of categorical data; discussion and illustration of their applications and limitations. Mr. Korn (W)

**201F. Special Topics: Distribution Free Methods.** Lecture, three hours; discussion, one hour. Prerequisites: course 100D or 101B, Mathematics 150C or 152B, or consent of instructor. Theory and application of distribution free methods in biostatistics.

**201G. Special Topics: Statistical Simulation Techniques.** Lecture, three hours; discussion, one hour. Prerequisites: course 100C, Mathematics 150C or 152B, a course in computer programming, consent of instructor. Techniques for simulating important statistical distributions, with applications in biostatistics.

**201H. Special Topics: Finite Population Sampling.** Lecture, three hours; discussion, one hour. Prerequisite: course 100D or Mathematics 150C or 152B. Theory and methods for sampling finite populations and estimating population characteristics.

**201J. Special Topics: Supplemental Topics.** Lecture, three hours; discussion, one hour. Prerequisites: course 100C, consent of instructor. Topics in biostatistics not covered in other courses.

**M201K. Survival Analysis.** (Same as Biomathematics M281.) Lecture, three hours; discussion, one hour. Prerequisites: course 100C and Mathematics 150C or 152B, or equivalent, and consent of instructor. Statistical methods for the analysis of survival data. Mr. Elashoff (W)

**201M. Introduction to Statistical Methods for Biological Assays.** Prerequisites: course 100C and Mathematics 150C or 152B. Topics include standard statistical procedures for the estimation of relative potency, density of microorganisms, and density of radioactivity, models used for these procedures, and statistical considerations for designing such assays.

**M202E. Problems of Statistical Consultation.** (Same as Biomathematics M282.) Lecture, two hours; discussion, one hour; laboratory, two hours. Prerequisite: graduate course in applied statistics. Textbook and original problems requiring special expertise in design and analysis. Computer packages are used to diagnose failure of assumptions, suitability of models, and alternate analyses.

Mr. Dixon (W)

**M202F. Statistical Analysis of Incomplete Data.** (Same as Biomathematics M232.) Lecture, three hours; laboratory, one hour. Prerequisites: course 100B or 101B, Mathematics 150C or 152B, or equivalent, and consent of instructor. The course discusses the statistical analysis of incomplete data sets. Material is taken from the 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 the methods to applied problems, as well as on the underlying theory. S/U or letter grading. Mr. Little (Sp)

**203A. Data Base Management Systems.** Lecture, three hours; laboratory, two hours. Prerequisites: course 403 or equivalent and consent of instructor. Data base and data base models applied to medical and public health studies; design of data bases for efficient data retrieval and statistical analysis using package data base management and statistical package programs.

**203B. Systems Analysis for Health Data.** Lecture, three hours; laboratory, two hours. Prerequisites: course 203A, consent of instructor. 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.

**204E. Seminar in Biostatistics (2 units).** Prerequisites: course 200B, two courses from the M201E-201J series, consent of instructor. Students present and discuss current developments of methodology and problems in applications of biostatistics.

**204F. Advanced Seminar in Biostatistics (2 units).** Prerequisites: course 200C and consent of instructor. Students and faculty present and discuss current research in biostatistics. May be repeated for credit. S/U grading.

**M205A-M205B-M205C. Linear Statistical Models.** (Same as Mathematics M279A-M279B-M279C.) Lecture, three hours. Prerequisites: course 100C, and Mathematics 150C or 152B, or equivalent. Topics include linear algebra applied to linear statistical models, distribution of quadratic forms, the Gauss-Markov theorem, fixed and random component models, balanced and unbalanced designs.

**206A-206B. Multivariate Biostatistics.** Lecture, three hours. Prerequisite: course M205A or equivalent. Multivariate analysis as used in biological and medical situations. Topics from component analysis, factor analysis, discriminant analysis, analysis of dispersion, canonical analysis.

**207E. Advanced Topics: Stochastic Processes.** Lecture, three hours. Prerequisites: upper division mathematics, including statistics and probability. Stochastic processes applicable to medical and biological research.

**207F. Advanced Topics: Mathematical Epidemiology.** Lecture, three hours. Prerequisites: course 207E or equivalent and upper division mathematics, including statistics and probability. Mathematical theory of epidemiology with deterministic and stochastic models and problems involved in applying the theory.

**207G. Advanced Topics: Statistical Genetics.** Lecture, three hours. Prerequisites: upper division mathematics, including statistics and probability. Introduction to statistical genetics.

**207H. Statistical Methods for Research Biological Assays.** Prerequisite: course 201M. Topics include statistical methods developed for research assays for which the standard procedures do not apply.

**M207J. Computational Statistics.** (Same as Biomathematics M280 and Mathematics M280.) Lecture, three hours. Prerequisites: Mathematics 115A and 150C, or equivalent. Introduction to theory and design of statistical programs: pivoting and other technologies used in stepwise regression, nonlinear regression algorithms, algorithms for balanced and unbalanced analysis of variance, including the mixed model, iterative rescaling, and other methods for log-linear models. Mr. Jennrich (F)

**207L. Advanced Topics: Recent Developments.** Lecture, three hours; discussion, one hour. Prerequisite: course 200C. Advanced topics and developments in biostatistics not covered in the Public Health 201 or 207 series, or in other courses. Possible topics include time-series analysis, classification procedures, correspondence analysis, etc.

**210. Principles of Infectious Disease Epidemiology.** Lecture, three hours. Prerequisites: courses 100A or equivalent, 112, one-year sequence of biology and chemistry, 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. Mr. Barr

**211A. Epidemiology II.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 100B (may be taken concurrently), 114, consent of instructor. Discussion of study designs, research methodology, problems of measurement, and analytic techniques used in epidemiologic research.

**211B. Advanced Epidemiology.** Lecture, two hours; laboratory, four hours. Prerequisites: course 211A, graduate standing, consent of instructor. A continuation of course 211A, with concentration on selection of appropriate research design, problems of measurement, and analytic techniques commonly used in epidemiologic studies.

**211C. Advanced Epidemiologic Analysis.** (Formerly numbered 298.) Lecture, two hours; laboratory, four hours. Prerequisites: courses 100C or 100D and 211B, or equivalent, and 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. Mr. Greenland

**212E. Epidemiology of Cardiovascular Disease (2 units).** Lecture, one hour; discussion, one hour. Prerequisites: course 211A, consent of instructor. Theoretical, practical, and controversial aspects of cardiovascular epidemiology in developed and underdeveloped countries.

**212G. Epidemiology of Neurologic Disease (2 units).** Prerequisites: course 211B or equivalent and consent of instructor. Epidemiologic characteristics of selected chronic neurologic diseases, with particular emphasis on etiology and possible control. Ms. Visscher

**212H. Epidemiology of Arthropod-Borne Disease.** Prerequisites: course 211B, graduate standing. Epidemiologic aspects of disease carried by arthropods, emphasizing life cycle and ecology of vectors as related to epidemiology of viral, rickettsial, bacterial, protozoal, and helminthic diseases. Mr. Barr

**212I. Epidemiology of Injuries.** Lecture, two hours; discussion, two hours. Prerequisites: courses 100A, 110, 112 or 114, 155, or equivalent, and consent of instructor. Epidemiologic aspects of nonintentional injury, homicide, and suicide; concepts and models in injury etiology; risk factors in injury production; magnitude and impact of injuries on society. Evaluation of preventive strategies in injury prevention. Mr. Kraus



**212J. Occupational Epidemiology.** Lecture, two hours; discussion, two hours. Prerequisites: course 211A or equivalent and consent of instructor. Methodological considerations, approaches, and limitations in epidemiological studies of occupational groups and environments. Mr. Kraus

**213. Environmental Epidemiology.** Lecture, two hours; discussion, one hour; independent study, three hours. Prerequisites: courses 100B, 112 or 114, Chemistry 21, Physics 3C or equivalent, graduate standing, consent of instructor. Methodologic problems and approaches of epidemiology for assessing the health impact of major types of environmental exposure. Mr. Spivey

**214. Infectious and Tropical Disease Epidemiology.** Lecture, three hours; discussion, three hours. Prerequisites: courses 100A, 112, or equivalent, and consent of instructor. Epidemiology of major infectious and tropical diseases in developing countries, including those with direct or contact mode of spread and those vector borne.

**215A. Epidemiology of Cancer.** Prerequisites: courses 100A, 112, 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. Mr. Haile

**215B. Epidemiology of Cancer (2 units).** Lecture, one hour; discussion, one hour. Prerequisites: course 215A, consent of instructor. Current issues in cancer epidemiology, including etiologic research, screening programs, prevention. Mr. Haile

**216A. Ecology of Exotic Diseases.** Lecture, two hours; discussion, six hours. Prerequisites: course 112, Microbiology C103A and C103B, or equivalent, and consent of instructor. Geographic pathology and behavioral causes of exotic diseases. Climatological, ecological, and biological determinants of the distribution, exposure to, and occurrence of exotic diseases. Mr. Work

**216B. Viral Diseases of Man.** Lecture, two hours; laboratory, six hours. Prerequisites: course 216A or equivalent and consent of instructor. Viral and rickettsial diseases of man. Natural history, epidemiology, diagnosis, control, and prevention of these diseases, especially in tropical situations. Mr. Work

**217. Prevalence Studies in Epidemiology.** Lecture, two hours; discussion, one hour; laboratory, two hours; outside assignments, ten to twelve hours. Prerequisites: courses 100B, and 211A or 181, or equivalent, and consent of instructor. Design, testing, field use, analysis, and interpretation of data collection instruments to obtain prevalence estimates in epidemiologic studies of populations and samples. Includes design and administration of questionnaires, interviewing procedures, and the application of non-invasive objective measurements. Ms. Bourque, Ms. Coulson

**218A. Protozoal Diseases of Man.** Prerequisites: Microbiology 101 or Biology 105 or equivalent and consent of instructor. May be taken concurrently with course 218B. Comprehensive overview of systematics, morphology, biology, host-parasite relationships, public health problems, and control of protozoa parasitic in man and animals. Mr. Ash

**218B. Protozoal Diseases of Man (2 units).** Prerequisite or corequisite: course 218A. Laboratory methods of diagnosis and microscopic recognition of protozoa parasitic in man and animals. Includes intestinal protozoa and organisms occurring in the blood and tissues of their hosts and pathology associated with these infections. Mr. Ash

**219. Arthropods of Medical Importance.** Lecture, two hours; laboratory, six hours. Prerequisites: Biology 105 or 107 and 181, Microbiology 101, or equivalent. Biology and identification of mites and insects of public health importance involved in transmission and causation of human diseases. Mr. Barr

**220A. Helminthic Diseases of Man.** Prerequisites: Microbiology 101 or Biology 105 or equivalent and consent of instructor. May be taken concurrently with course 220B. Comprehensive overview of systematics, morphology, biology, host-parasite relationships, public health problems, and control of the nematodes, trematodes, and cestodes parasitic in man and animals. Mr. Ash

**220B. Helminthic Diseases of Man (2 units).** Prerequisite or corequisite: course 220A. Laboratory diagnosis and practical microscopic recognition of the nematodes, trematodes, and cestodes parasitic in man and animals. Pathology produced by these infections is also studied. Mr. Ash

**221. Seminar in Epidemiology: Methodology (2 units).** Prerequisites: course 211A or equivalent and consent of instructor. Review of current epidemiologic research contained in recent medical literature. May be repeated for credit. S/U grading.

**222. Seminar in Epidemiology: Infectious and Tropical Disease (2 units).** Prerequisites: course 211A or equivalent and consent of instructor. Review of research on specific diseases of public health importance. May be repeated for credit. S/U grading.

**223. Topics in Theoretical Epidemiology (2 units).** Prerequisites: courses 100A and 100B and 100D (or Mathematics 152A), 211A, 211B, 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 by consent of instructor. S/U grading. Mr. Greenland

**224. Principles of Epidemiology II.** Lecture, four hours; discussion, two hours. Prerequisites: courses 100A, 112, upper division biology course, or equivalent, and consent of instructor. Material presented in course 112 is examined in greater detail. Topics include measures of disease occurrence and criteria of causality; reliability and validity concerns; proper design, analysis, interpretation of experiments, and cohort and case control studies. Mr. Haile

**225. Research Methods in Cancer Epidemiology (2 units).** Prerequisites: courses 100A, 112, 211A. 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. Mr. Mack

**226. Genetic Epidemiology (2 units).** Prerequisites: courses 100A, 112, upper division biology course, or equivalent, and 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. Mr. Haile

**227. Public Health Research Using Available Data (2 units).** Lecture, one hour; discussion, one hour. Prerequisites: courses 100A, 110, 112, and 410A or 403 or 217 or 405, or equivalent, and consent of instructor. Presentations and discussions of the 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. Ms. Coulson

**229. Advanced Seminar in Epidemiology (2 units).** Prerequisites: course 211B, consent of instructor. Students and faculty present and discuss current research in epidemiology. May be repeated for credit. S/U grading.

**231. Regulation of Health Care in the United States.** Lecture, three hours; discussion, one hour. Prerequisites: course 130, one course in health care management, health planning, political science, economics, or health law, or equivalent, and consent of instructor. Description and analysis of health care regulation by federal and state governments. Covers regulatory theory and arguments for more competition. Specific topics include facility certification, quality assurance, certificate of need, rate setting, and regulation of physicians and technology. Mr. Fielding

**232. Governmental Health Services and Trends.** Prerequisites: course 130, two additional upper division social or behavioral sciences courses, consent of instructor. Systematic analysis of the 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. Mr. Shonick

**233. Health Policy Analysis.** Lecture, two hours; discussion, two hours. Prerequisites: course 130 or equivalent, three courses in social sciences, consent of instructor. Conceptual and procedural tools for the analysis of health policy, emphasizing the role of analysis during the various phases of the life cycle of public policy. Mr. Cameron

**234A-234B. Clinical Epidemiology (2 units each).** Prerequisites or corequisites: courses 100A, 112, 136A, consent of instructor. Introduction to special issues in clinical health services research. Focus on research design and analysis of data. In Progress grading. Mr. Greenfield

**235. Law, Social Change, and Health Service Policy.** Prerequisites: course 130, two upper division courses in political science or sociology or equivalent, and consent of instructor. Legal issues affecting policy formulation for environmental, preventive, and curative health service programs are examined. Ms. Roemer

**236. Quality Assessment and Assurance.** Lecture, 90 minutes; discussion, 90 minutes; conference, one hour. Prerequisites: courses 100A, 112, 130, one additional course in health services or epidemiology, or equivalent, and consent of instructor. Fundamental issues in quality assessment, quality assurance, and the measurement of health status. Mr. Brook

**237A-237B. Special Topics in Health Services Research Methodology.** Lecture, one hour; discussion, three hours. Prerequisites: courses 100A, 100B, 100C, 130, or equivalent, and consent of instructor. In-depth consideration of problems in the application of statistical and other quantitative methods in health services research. Students and faculty critique adequacy of study designs, appropriateness of analyses, and degree to which conclusions are supported by data. S/U grading. Ms. Cretin, Mr. Shonick

**238. Microeconomic Theory of the Health Sector.** Prerequisites: courses 100A or equivalent, 232, Economics 1, 2, consent of instructor. Microeconomic aspects of the health care system, including health manpower substitution, choice of efficient modes of treatment, market efficiency, and competition. Mr. Schweitzer

**239. Aging and Long-Term Care.** Prerequisites: courses 130, 138, 182, or equivalent, and consent of instructor. Long-term care of the chronically ill elderly is examined from a 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. Mr. Kane

**240. Health Care Issues in International Perspective.** Prerequisites: two courses in health administration, two upper division courses in social sciences, or equivalent, and 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 are probed in the settings of European welfare states, developing nations, and socialist countries. Mr. Roemer

**243. Issues in Health Planning.** Discussion, three hours; other, three hours. Prerequisites: courses 181 or equivalent research course and 444B. In-depth presentation and analysis of current issues of importance to advanced students in health planning.

**247. Research Topics in Health Economics.** Prerequisites: courses 130, 238, 446 or equivalent, and 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, the diffusion of technology, and cost-benefit analysis of health programs.

Mr. Schweitzer

**248. Small Area Planning for Resources for Personal Health Service.** Lecture, three hours; laboratory, two hours. Prerequisites: courses 130, 134, or equivalent, and 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.

Mr. Shonick

**250. Advanced Environmental Health.** Lecture, three hours. Prerequisites: course 150 or equivalent and consent of instructor. Theoretical considerations and supporting data involved in scientific establishment and justification of environmental health standards and requirements, with particular reference to related health factors.

Ms. Valentine

**251. Chemical Behavior of Aquatic Systems.** Lecture, three hours. Prerequisites: course 150, Chemistry 11A, Mathematics 3A, consent of instructor. Chemistry of ocean waters, rivers, ground waters, and water treatment systems. Topics include thermodynamics of natural waters, acids and bases, carbon dioxide cycle, solubility reactions, oxidation and reduction, plus applied problems.

Ms. Valentine

**252. Environmental Microbiology.** Lecture, three hours. Prerequisites: courses 150 and 153, or equivalent, and consent of instructor. Basic concepts of eutrophication, indicator organisms, aquatic microbes; assessment of biological treatment practices in water reuse and/or purification.

Mr. Mah

**253A. Environmental Toxicology.** Lecture, three hours; discussion, one hour. Prerequisites: Chemistry 152, Biological Chemistry 101A-101B, consent of instructor. Essentials of toxicology, dose response, physical, chemical, or biological agents that adversely affect man and environmental quality.

Mr. Froines, Mr. Mustafa

**253B. Environmental Toxicology: Trace Contaminants.** Lecture, three hours; discussion, one hour. Prerequisite: course 253A. Essentials of toxicology in relation to trace contaminants.

Mr. Froines

**254. Environmental Decision Systems Analysis.** Lecture, four hours; discussion, one hour. Prerequisites: courses 154, 250, Mathematics 3C, or equivalent, and consent of instructor. 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.

Mr. Davos

**255. Seminar in Environmental Health Sciences (2 units).** Prerequisites: courses 150, 156, consent of instructor. A presentation in seminar format of theoretical and practical aspects of environmental and occupational sciences currently being conducted in local, state, federal, and academic settings. May be repeated for credit. S/U grading.

**256. Seminar in Health Effects of Environmental Contaminants (2 units).** Prerequisites: Biological Chemistry 101A-101B or equivalent and consent of instructor. Emphasis on health effects of air, water, environmental pollutants on man and review of research literature. May be repeated for credit.

**257. Control of Airborne Contaminants in Industry.** Lecture, two hours; laboratory, two hours. Prerequisites: courses 156, 157E, consent of instructor. Intended for industrial hygiene majors. Principles and applications of control technology to industrial environments, including general and local exhaust ventilation, air cleaning equipment, and respiratory protection.

Mr. Hinds

**258. Instrumental Methods in Environmental Sciences.** Lecture, two hours; laboratory, six hours. Prerequisites: courses 150, 153, 156, Chemistry 25, consent of instructor. Laboratory techniques and instrumentation used in the preparation and analysis of biological, environmental, and occupational samples.

Ms. Valentine

**260E. Advanced Nutrition: Vitamins.** Lecture, three hours; discussion, one hour. Prerequisites: Biological Chemistry 101A-101B-101C or equivalent and consent of instructor. Comprehensive treatment of vitamin nutrition and metabolic-nutrient interactions.

Ms. Swendseid

**260F. Advanced Nutrition: Proteins.** Lecture, three hours; discussion, one hour. Prerequisites: Biological Chemistry 101A-101B-101C or equivalent and consent of instructor. Comprehensive treatment of protein nutrition and metabolic-nutrient interactions.

Ms. Swendseid

**260G. Advanced Nutrition: Lipids.** Lecture, three hours; discussion, one hour. Prerequisites: Biological Chemistry 101A-101B-101C or equivalent and consent of instructor. Comprehensive treatment of lipid nutrition and metabolic-nutrient interactions.

Ms. Alfin-Slater

**260H. Advanced Nutrition: Minerals (2 units).** Prerequisites: Biological Chemistry 101A-101B-101C or equivalent and consent of instructor. Comprehensive treatment of mineral nutrition and metabolic-nutrient interactions.

Ms. Carlisle

**261A. Laboratory Instrumentation and Methods.** Lecture, two hours; laboratory, six hours. Prerequisites: course 165 and Chemistry 25 or Biological Chemistry 101A (may be taken concurrently), consent of instructor. Biochemical techniques and instrumentation used in environmental and nutritional sciences, including absorption, atomic absorption and fluorescence spectroscopy, gas chromatography, HPLC, electrophoresis, radioisotopes, and centrifugation.

Mr. Jones, Mr. Panaqua

**261B. Advanced Laboratory Techniques in Nutritional Science.** Lecture, one hour; laboratory, six hours. Prerequisites: course 261A, consent of instructor. Current biochemical methods emphasizing instrumentation.

Mr. Eckhart

**262. Seminar in Nutrition (2 units).** Prerequisites: courses 162, 167, one course in the 260 series. Review of current literature in nutritional science. Emphasis on methodology and data evaluation. May be repeated for credit.

**263. Seminar in Public Health Nutrition (2 units).** Prerequisites: courses 162, 167, one nutrition course in the 200 or 400 series. Review of literature in selected areas of public health nutrition. May be repeated for credit.

**264E. Clinical Nutrition Problems (2 units).** Prerequisites: one or more nutrition courses in the 200 series, and Biological Chemistry 101A-101B-101C or 201A-201B. Nutrition and nutrient-metabolic interactions in various disease states such as gastrointestinal disorders, renal disease, and liver disease.

Ms. Alfin-Slater, Mr. Kopple, Ms. Swendseid

**264F. Clinical Nutrition Problems (2 units).** Prerequisites: one or more nutrition courses in the 200 series, and Biological Chemistry 101A-101B-101C or 201A-201B. Nutrition and nutrient-metabolic interactions in various disease states such as cardiovascular disease, diabetes, and obesity.

Ms. Alfin-Slater, Mr. Kopple, Ms. Swendseid

**265. Doctoral Research Seminar in Nutritional Sciences (2 units).** Prerequisites: at least one course in the 260 series, doctoral standing, consent of instructor. Limited to doctoral students. Presentation of research projects. Emphasis on data evaluation. May be repeated for credit. S/U grading.

Ms. Swendseid

**270. Maternal and Child Nutrition.** Prerequisites: courses 110, 161, 170, or equivalent, and 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.

Mr. Jelliffe, Ms. Neumann

**M271. Medical Anthropology.** (Formerly numbered 271.) (Same as Anthropology M266.) Prerequisites: courses 110 and 112, one upper division course in psychology, sociology, or anthropology, or equivalent, and consent of instructor. Cross-cultural aspects of human behavior as they relate to perception, treatment, incidence, and prevalence of disease and illness.

Ms. Scrimshaw

**272. Seminar on Current Issues in Maternal and Child Health (2 units).** Prerequisites: courses 110 or equivalent, 171A, 171B, consent of instructor. New knowledge and approaches in selected health and social problems of families, women of childbearing age, and children, including early development, day care, and genetic counseling.

Mr. A. Chang

**M273. Qualitative Research Methodology.** (Formerly numbered 273.) (Same as Anthropology M284.) Discussion, three hours; laboratory, one hour. Prerequisites: courses 100A and 125 or 181, an undergraduate or graduate course in social psychology, anthropology, or sociology, and 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.

Ms. Scrimshaw

**M274A-M274B. Population Policy and Fertility.** (Same as Sociology M287A-M287B.) Lecture, three hours; discussion, one hour. Prerequisites: courses 100A, 112, 171A, 171B, or equivalent, graduate standing, consent of instructor. Course M274A is prerequisite to M274B. Analysis of research concerning major issues in population policy, with special emphasis on human fertility.

Ms. Blake

**M274C. Seminar in Population Policy and Fertility.** (Same as Sociology M287C.) Seminar, three hours; discussion, one hour. Prerequisites: courses M274A-M274B or equivalent, graduate standing, consent of instructor. Review of current literature in population policy and fertility in conjunction with student research reports. May not be repeated for credit.

Ms. Blake

**275. Human Lactation: Biological and Public Health Significance (2 units).** Prerequisites: courses 112, 270, or equivalent, and consent of instructor. Biological and economic aspects of human lactation in industrialized and developing countries.

Mr. Jelliffe



**M276. Culture and Human Reproduction.** (Formerly numbered 476.) (Same as Anthropology M262P.) Lecture, two hours; discussion, two hours. Prerequisites: courses 110, 112, 172, 474, or equivalent, and consent of instructor. Exploration of human behavior related to reproduction. Cross-cultural exploration of biological and behavioral factors, with particular reference to human adaptation. Ms. Scrimshaw

**278. Clinical Genetics (2 units).** Lecture, 90 minutes; discussion, 30 minutes. Prerequisites: courses 100A, 112, 170E, 256, consent of instructor. An in-depth view of genetic disorders, their clinical manifestations, and characteristic approaches to management of the patient and family. Mr. Alfi

**279. Advanced Seminar in Population and Family Health (2 units).** Prerequisites: doctoral standing, consent of instructor. Students and faculty present and discuss current research in population and family health. May be repeated for credit. S/U grading.

**280. Change Determinants in Health-Related Behavior.** Prerequisites: course 182, three courses from Psychology 135, 170A, Sociology 152, 154, or equivalent, and 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.

**281. Advanced Social Research Methods in Health.** Lecture, two hours; laboratory, two hours. Prerequisites: courses 100B, 181, or equivalent, and 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. Ms. Siegel

**282. Communications in Health Promotion and Education.** Lecture, two hours; discussion, two hours. Prerequisites: courses 182, 183, or equivalent, and consent of instructor. The course focuses on 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. Mr. Kar

**283E. Social Epidemiology I.** (Formerly numbered M283E.) Lecture, two hours; discussion, one hour. Prerequisites: courses 112, 183, three courses in psychology, sociology, or anthropology, or equivalent, and consent of instructor. Relationship between sociological, cultural, and psychosocial factors in etiology, occurrence, and distribution of morbidity and mortality. Emphasis on life-styles and other socioenvironmental factors associated with general susceptibility to disease and subsequent mortality. Ms. Siegel

**M283F. Sociocultural Aspects of Health and Illness: Health Professions.** (Same as Sociology M249A.) Lecture, three hours. Prerequisites: course 182, three courses in psychology, sociology, or anthropology, or equivalent, and consent of instructor. Sociological examination of the concepts "health" and "illness" and role of various health professionals, especially physicians. Attention to the meaning of professionalization and professional-client relationships within a range of organizational settings. Mr. Goldstein

**M283G. Sociocultural Aspects of Health and Illness: Health Behavior.** (Same as Sociology M249B.) Seminar, three hours. Prerequisites: course 182, three courses in psychology, sociology, or anthropology, or equivalent, and consent of instructor. Sociocultural factors affecting differential patterns of health behavior, illness behavior, and sick role behavior. Mr. Berkanovic

**283H. Social Epidemiology II.** Lecture, two hours; discussion, one hour. Prerequisites: courses 112, 183, three courses in psychology, sociology, or anthropology, or equivalent, and 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 life-styles and other socioenvironmental factors associated with chronic diseases. Ms. Siegel

**284. Ecology of Mental Health.** Lecture, three hours. Prerequisites: courses 100A, 112 and 182 or equivalent, and consent of instructor. Analysis of occurrence and distribution of mental disorders in the community and the relationships to social structure. Problems of classification, definition, measurement in sociopsychiatric epidemiology, sociocultural and social-psychological factors in mental disorders. Mr. Goldstein

**285. Community Problems in Mental Disorders.** Lecture, three hours. Prerequisites: course 182, three upper division or graduate courses in psychology or sociology or equivalent, and consent of instructor. Intensive examination of the meaning of mental health, mental illness, and psychotherapy, both curative and preventive, within a public health context. Implications for social policy and planning. Mr. Goldstein

**286. Seminar in Behavioral Sciences and Health (2 to 4 units).** Lecture, two hours. Prerequisites: courses 283E, M283F, M283G, or equivalent, and consent of instructor. Recent significant contributions of behavioral sciences to understanding health and illness, with selected and varying topics each quarter. May be repeated for credit. S/U grading.

Mr. Kar and the Staff

**287. Community Organization in the Health Field.** Lecture, two hours; discussion, one hour; fieldwork, eight hours. Prerequisites: courses 182, 183, at least two courses in sociology or anthropology, or equivalent, and consent of instructor. Theory and practice of community organization applied to health problems, including analysis of relevant factors in physical and social environment and development of community-based intervention strategies to improve health and health services. Mr. Brown

**288. Current Problems in Health Education.** Lecture, one hour; discussion, three hours. Prerequisites: courses 183, 280, consent of instructor. Current problems and findings in health education content areas, such as nutrition, mental health, family health, consumer health, safety, communicable and chronic diseases.

**289. Issues in Program Evaluation.** Discussion, three hours. Prerequisites: course 281, one course in social science, or equivalent, and consent of instructor. Advanced seminar which explores the problems of planning and implementing evaluation research in the context of local demonstration projects. Mr. Berkanovic

**290. Seminar in Community Health Education (2 units).** Prerequisites: courses 288, 481. In-depth analysis of health education concepts as they relate to the professional practitioner.

**291. Advanced Topics in Health Survey Research Methods.** Lecture, two hours; discussion, two hours. Prerequisites: course 281 or equivalent and 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.

**M292. Alcohol and Drug Abuse: Social Policy Perspectives (3 units).** (Same as Psychiatry M280.) Prerequisite: consent of instructor. Alternative models of alcohol and other drug addictions are examined and implications assessed for public policy regarding their control. Prevention efforts and findings from California and national surveys are considered, with primary emphasis on alcohol use and abuse. Ms. Beckman

**M293. Alcoholism and Drug Abuse among Women.** (Same as Psychiatry M233.) Prerequisite: consent of instructor. Discussion of the psychosocial aspects of abuse of alcohol and other drugs among women. Topics include etiology, prevention, treatment, hormonal influences, and the role of the family. Emphasis on current theoretical perspectives and research findings. Ms. Beckman

**294. Introduction to Occupational Health Education.** Lecture, one hour; discussion, two hours; outside assignment, one hour. Prerequisites: course 156, two courses in sociology, psychology, or education, and 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. Mr. Wojtecky

**295. Research in Community and Patient Health Education.** Lecture, two hours; discussion, two hours. Prerequisites: courses 182, 183, and 480, or consent of instructor. Intensive examination into the conceptualization, design, implementation, and evaluation of specific educational programs. Behavioral science theories are integrated with health education research, practice, and evaluation. Mr. Morisky

**296. Advanced Community Health Education.** Lecture, two hours; discussion, two hours. Prerequisites: course 182, three courses in social science or public health. Before planning the educational components of a health program, one must assess the leading factors influencing the health problem in question. The course assists students in developing skills in the specification and evaluation of behaviors influencing a health problem. Mr. Morisky

**375. Teaching Apprentice Practicum (1 to 4 units).** Prerequisite: apprentice personnel employment as a teaching assistant, associate, or fellow. A teaching apprenticeship under the 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.

**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 the M.S. minimum course requirement; four units may be applied toward the 44-unit minimum total required for the M.P.H. degree.

**401E. Statistical Methods in Medical Studies (2 units).** Prerequisites: course 100C or 100D or Mathematics 152B or equivalent and graduate standing in public health or related field. Design and analysis of biomedical studies. S/U grading (nondivision majors only).

**401F. Statistical Methods for Longitudinal Data.** Lecture, three hours. Prerequisites: courses 100C or 100D or Mathematics 150C or 152B or equivalent, 112, consent of instructor. Design and analysis of longitudinal or panel studies. S/U grading (nondivision majors only).

**402A. Principles of Biostatistical Consulting (2 units).** Lecture, one hour; discussion, one hour. Prerequisites: courses 100B or 101B and Mathematics 150B or 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. Prerequisites: courses 100C and 402A, or consent of instructor. 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 courses in research methodology, Computer Science 10S or equivalent, and consent of instructor. Concepts of health data management, design and maintenance of large data bases 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: courses 100B, 112, or equivalent, and consent of instructor. Statistical aspects of the design and implementation of a sample survey. Techniques for the analysis of the data, including estimates and standard errors. Avoiding improper use of survey data.

**405. Demographic Materials and Methods.** Lecture, three hours; laboratory, two hours. Prerequisites: courses 100A or 101A, 112 or 114, 180, or equivalent, and consent of instructor. 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.

**406. Applied Multivariate Biostatistics.** Lecture, three hours; discussion, one hour. Prerequisites: course 100B, at least two other upper division public health courses, consent of instructor. The use of multiple regression, principal components, factor analysis, discriminant function analysis, logistic regression, and canonical correlation in biomedical data analysis. S/U grading (nondivision majors only).

**410A. Management of Epidemiologic Data (2 units).** Prerequisites: courses 100A, 112 (one course may be taken concurrently by consent of instructor). Concepts, collection, and management of data, with particular emphasis on large-scale data bases. Introduction to computers and appropriate selection and use of packaged programs. Ms. Coulson

**410B. Management of Epidemiologic Data (2 units).** Prerequisites: course 410A or equivalent and consent of instructor. Development of special purpose programming and compiler languages for epidemiologic problems. Data management in large-scale studies in infectious and chronic diseases is emphasized. Ms. Coulson

**411. Research Resources in Epidemiology (2 units).** Lecture, one hour; discussion, one hour. Prerequisites: courses 100B, 211B, consent of instructor. Instruction and practical experience in the use of varied bibliographic aids and sources of information, building of reference files, and presentation of research findings for publication.

Ms. Coulson, Mr. Spivey

**412. Administration of Preventive and Medical Clinics (2 units).** Lecture, one hour; discussion, one hour; field trips. Prerequisites: courses 112, 130, or equivalent, and consent of instructor. Delivery of preventive and ambulatory health services in the clinic. Epidemiologic, administrative, and financial aspects of communicable disease, substance abuse, mental health, prenatal care, family planning, cardiovascular disease, presymptomatic screening, venereal disease, and degenerative diseases. Mr. Tennant

**413. Preventive Medicine in Public Health Practice.** Lecture, two hours; discussion, two hours. Prerequisites: courses 100A, 110, 112, 130, or equivalent, graduate standing, and consent of instructor. Development, current status, and potential of preventive medicine in public health practice, focusing on the risk indicator approach (exercise, alcohol, stress, etc.), with consideration of program settings, delivery problems, and issues. Mr. Breslow, Mr. Fielding

**414. Practical Epidemiologic Investigations.** Lecture, one hour; laboratory, three hours. Prerequisites: courses 100A, 112 or 114, 211A, or equivalent, and consent of instructor. Practical approaches to epidemic investigations presented through problem sets based on actual outbreaks. Includes data collection, analysis, and written presentation of findings.

Mr. Baker, Mr. Goodman, and the Staff

**430. Management of Medical Care Organizations and Programs.** Prerequisites: course 131, consent of instructor. Application of organizational, economic, and behavioral science concepts to understanding structure and functions of health care facilities and programs.

Mr. Pointer

**431. Managerial Processes in Health Service Organizations.** Lecture, one hour; laboratory, three hours. Prerequisites: course 430, 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.

Mr. Pointer, Mr. Ross

**432. Integrative Seminar in 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.

Ms. Cretin, Mr. Pointer, Mr. Ross

**433. Contemporary Issues in Health Services Management.** Lecture, two hours; discussion, two hours. Prerequisite: course 431. Advanced study of contemporary intramural and extramural issues which affect management of health care facilities.

Ms. Cretin, Mr. Pointer, Mr. Ross

**434. Quantitative Methods in Health Services Management.** Prerequisite: course 139. Quantitative methods for managerial decision making. Deterministic and stochastic analyses of problems in resource allocation, inventory control, task sequencing, patient and facilities scheduling, demand forecasting, and cost-benefit analysis. Ms. Cretin

**435. Manpower Management in Health Services Organizations (2 units).** Prerequisites: course 131 or equivalent and consent of instructor. Introduction to personnel administration and labor relations as they apply to health care facilities. Mr. Pointer

**436. Financial Management of Health Service Organizations.** Prerequisites: courses 131, 141, 430, or equivalent, and 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. Mr. Coyne

**437. The Legal Environment of Health Services Management (2 units).** Prerequisites: course 131 or equivalent and 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. Mr. Liset

**438. Issues and Problems of Local Health Administration (2 units).** Prerequisites: courses 110, 130, one additional health services course, consent of instructor. Analysis of organizational issues currently faced by local health departments in increasing scope and quality of services; exploration of administrative problems and interagency relationships.

Ms. Alkon

**439. Dental Care Administration (2 units).** Prerequisites or corequisites: courses 100A, 112, or equivalent, and consent of instructor. In-depth examination of several specific dental care policy issues: manpower, relationship of treatment to disease, national health program strategies, and evaluation mechanisms. Mr. Schoen

**440A. Health Information Systems: Organization and Management.** Lecture, two hours; laboratory, three hours. Prerequisites: courses 140A-140B or equivalent and consent of instructor. Principles of and systems relating to organization and management of a health facility's health information system.

Ms. Lugg

**440B. Health Information Systems: Organization and Management.** Lecture, two hours; laboratory, three hours. Prerequisites: course 440A or equivalent and 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. Ms. Lugg

**441A-441B. Health Record Systems (2 units each).** Prerequisites: courses 100A, 112, 130, or equivalent, and consent of instructor. Course 441A is prerequisite to 441B. Advanced study of principles and criteria involved in planning, installing, and administering systems to record, process, and retrieve data for records and reports in health and medical institutions and agencies. Ms. Lugg

**442. Principles and Practices of Medical Care Audit (2 units).** Prerequisites: courses 100A, 112, 130, or equivalent, and consent of instructor. Analysis of systems used in evaluating health care professional providers' performances in hospital and ambulatory settings. Health information systems and data available used for medical audits. Mr. Goodman

**443D. Advanced Hospital Financial Management Simulation.** Lecture, one hour; discussion, one hour; laboratory, two hours. Prerequisites: courses 130, 141, 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. Mr. Coyne

**443E. Advanced Hospital Financial Management Seminar.** Prerequisites: courses 130, 131, 141, 436, or equivalent, and consent of instructor. Hospital financial management, including reimbursement management, capital financing, and capital investment analysis, is discussed and analyzed with respect to students' individual residency sites. Mr. Coyne

**444A. Information Processing for Health Planners.** Prerequisites: courses 100A or 101A, 134, consent of instructor. Information theory presented as framework for understanding data analysis. Computer used to implement data analysis results with previously presented information systems concepts.

**444B. Applied Methodology in Health Planning.** Lecture, three hours; fieldwork, four hours. Prerequisites: courses 130 or equivalent, 444A, consent of instructor. Demonstrates methodology of health planning by involving students in formulation of actual health plan for existing agency in Los Angeles area. Mr. Melnick

**445A-445B. Practicum in Health Planning and Policy.** Field placement. Prerequisites: courses 100A, 100B, 130 (may be taken concurrently), 233, 248, or equivalent, and consent of instructor. Required of all M.S. health planning and policy students. Preparation for and subsequent analysis of ten-week work experience undertaken during summer between first and second year. In Progress and S/U grading. Mr. Cameron

**446. Financing Health Care.** Prerequisites: course 130, Economics 1, 2, or equivalent, and 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. Mr. Schweitzer



**447D. Management of Health Maintenance Organizations.** Lecture, three hours. Prerequisites: courses 130, 134, or equivalent, and 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 the national health policy. Mr. Wasserman

**447E. Health Insurance Principles and Programs.** Prerequisites: courses 130, 232, one additional health services course, or equivalent, and 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. Mr. Shonick

**447F. Health of Americans: Trends and Issues.** Prerequisites: courses 100A, 110, 112, 130, or equivalent, graduate standing, consent of instructor. Analysis of major trends in mortality, morbidity, and other aspects of health status, what determines these trends, services designed to influence these trends, and nature and extent of public responsibility for such services. Mr. Breslow

**448. Evaluation of Health Services and Programs.** Lecture, two hours; discussion, one hour; laboratory, one hour. Prerequisites: courses 100A, 130, 139, or equivalent, and consent of instructor. Analysis of methods and findings of current research and evaluation of personal health services and programs in a variety of social contexts. Principles of decision analysis. Emphasis on measurement of outcomes of health service systems.

**M449. Health Policy Issues for Dental Professionals (2 units).** (Same as Dentistry M422.) Prerequisites: courses 103, 112, 130, or equivalent, and consent of instructor. Current public health policy issues in dental health, including cost, financing, role of government, and quality assurance. Mr. Schoen

**M449D. Case Studies in Dental Practice (2 units).** (Same as Dentistry M433A.) The course provides students with a practice methodology for evaluation of dental care settings. It encompasses didactic and field experience, providing a foundation for evaluation of programs. Mr. Marcus

**M449E. Introduction to Health Care (2 units).** (Same as Dentistry M441C.) Description and analysis of the American dental care system from historical, ethical, and legal perspectives. Assessment of how dentistry fits within the general provision of health care services in America, with comparisons to dental care provisions in other countries. Mr. Freed

**450. Environmental Measurements.** Lecture, two hours; laboratory, four hours. Prerequisites: courses 153 or 261A, 250. 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. Mr. Mah, Ms. Valentine

**451. Water Quality and Health.** Lecture, three hours; discussion, one hour. Prerequisites: courses 150, 250, 450, or equivalent, and consent of instructor. An 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 are discussed. Ms. Valentine

**452. Environmental Hygiene and Appropriate Technologies (2 units).** Prerequisites: courses 112, 150, 153, 254, consent of instructor. Environmental sanitation of water supplies in rural and developing areas. Review of water quality problems and solutions for the nonurban, developing community. Technical, socioeconomic, and cultural problems associated with maintenance and delivery of high water quality. Mr. Day, Mr. Shift

**454. Environmental Policy Decision Making.** Lecture, four hours; discussion, one hour. Prerequisite: course 254. 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. Mr. Davos

**457. Environmental Hygiene Practices (2 units).** Prerequisites: courses 112, 150, 154, 450. 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.

**460. Principles of Public Health Nutrition.** Prerequisites: courses 100A, 130 (may be taken concurrently), 262 or 263, consent of instructor. Survey of methods of evaluating and improving nutritional status of population groups. Ms. Hunt, Ms. Murphy

**461. Computer Use in Dietary Assessment.** Lecture, two hours; laboratory, six hours. Prerequisites: courses 100A, 112 (may be taken concurrently), 162, 163, 460, consent of instructor. Collection and computer analysis of nutrient intake data for the purpose of nutritional assessment of population groups. Ms. Hunt, Ms. Murphy

**462. Nutritional Assessment: Laboratory Assays (2 units).** Lecture, one hour; laboratory, three hours. Prerequisites: courses 162, 165, 167, or equivalent, and one course in the 260 series. Biochemical methods for evaluating nutritional status of individuals or population groups. Techniques for measuring vitamins, minerals, lipids, and proteins. Ms. Swendseid

**463A. Preparation for Practicum in Public Health Nutrition (2 units).** Discussion, one hour; laboratory or fieldwork, five hours. Prerequisites: courses 112, 165, 460 (may be taken concurrently), Chemistry 152, consent of instructor. Students analyze a public health nutrition problem and prepare to conduct and evaluate the public health nutrition practicum. Ms. Hunt, Mr. Jones

**463B. Practicum in Public Health Nutrition.** (Formerly numbered 463.) Discussion, two hours; laboratory or fieldwork, ten hours. Prerequisites: courses 400 (may be taken concurrently), 460, 461, 463A, consent of instructor. Students analyze a public health nutrition problem and conduct and evaluate the public health nutrition practicum. Ms. Hunt, Mr. Jones

**470A. International Health Agencies and Programs.** Prerequisites: three upper division or graduate courses in social, health, or behavioral science, and 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. Mr. Neumann

**470B. Advanced Issues in International Health.** Lecture, two hours; discussion, two hours. Prerequisites: courses 240, 270, 470A or 472A or 475 or equivalent, and consent of instructor. In-depth focus on major health care issues confronting recipient less-developed countries and donors of technical and financial assistance. Mr. Neumann

**471A. Reproductive Health Services and Programs.** Lecture, two hours; discussion, two hours. Prerequisite: course 172 or equivalent. Examination of U.S. delivery system of pregnancy care, family planning, male-specific and female-specific health care, including methods, facilities, personnel, and funding. Mr. Richwald

**471B. Current Issues in Reproductive Health.** Lecture, two hours; discussion, two hours. Prerequisite: course 471A. Critical review of current public health and sociopolitical problems in reproductive health. Emphasis on development of feasible solutions and strategies for achieving them. Mr. Richwald

**472A. Maternal and Child Health in Developing Areas.** Prerequisites: courses 270, 470A, or equivalent, and 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. Ms. Neumann

**472B. Recent Developments in Maternal and Child Health in Disadvantaged Countries (2 units).** Prerequisites: courses 171A, 171B, 270, 472A, or equivalent, and 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. Mr. Jelliffe

**472D. Overseas Refugee Health Programs (2 units).** Lecture, one hour; discussion, one hour. Prerequisites: courses 110, 112, 270 or 472A, or equivalent, and consent of instructor. Comprehensive overview of the health problems of overseas refugee situations and of programs designed to deal with these special circumstances. Mr. Jelliffe

**473A. Handicapped Children: The Public Health Concern (2 units).** Prerequisites: courses 110, 130, 170, or equivalent, and consent of instructor. Etiology, prevalence, social consequences, and remedial programs for the major handicapping conditions in children. Emphasis on biological and social factors, current research, and program developments. Mr. Katz

**473D. Child Health in the United States of America.** Lecture, three hours; discussion, one hour; one field trip, three hours. Prerequisites: courses 110, 112, 130, 170, or equivalent, and consent of instructor. Examination of the health problems affecting infants, children, and adolescents in the United States and exploration of alternatives of priorities, approaches, services, and policies aimed at ameliorating these problems. Mr. Chang, Ms. Neumann

**473E. Adolescent Health: Major Issues and Problems (2 units).** Lecture, two hours; field trips, twenty-one hours. Prerequisites: courses 110, 171A, 171B, and 172, or equivalent, and consent of instructor. Overview of adolescent growth and development, significant physical and psychological problems, issues in health services delivery, and laws affecting youth and the juvenile offender. Mr. Jelliffe and the Staff

**473F. Research Seminar in Community Child Health Services (2 units).** Discussion, one hour; laboratory, one hour; field trips, two hours. Prerequisites: courses 100A, 125, 130, 171A, 171B, or equivalent, and 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. Mr. Chang

**473G. Health Services in Child Day Care.** Lecture, two hours; discussion, two hours; one field trip, three hours. Prerequisites: courses 110, 112, 130, 170, or equivalent, and 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. Mr. Chang

**473H. Child Health Policy.** Lecture, three hours; discussion, one hour. Prerequisites: courses 130 or equivalent, 171A, 172, 473D, consent of instructor. Analysis of the 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 the politics of developing a child health policy. Ms. Roemer



**474. Self-Care and Self-Help in Community Health.** Lecture, two hours; discussion, two hours. Prerequisites: courses 112, 130, fieldwork internship, or equivalent, and consent of instructor. Review of background, principles, concepts, programs, and research concerning the emerging field of self-care in health. Mr. Katz

**475. Planning and Development of Family Health Programs.** Lecture, two hours; discussion, two hours. Prerequisites: courses 100A, 125 or 470A, 170, 270, or equivalent, and consent of instructor. Theory, guidelines, and team exercise for planning community health/family planning projects in the United States 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. Mr. Neumann

**476D. Analysis of Family Health and Fertility Data.** Lecture, three hours; laboratory, two hours; assignment, twelve hours. Prerequisites: courses 100B, 125 or 181, 217, or equivalent, and consent of instructor. Analysis and interpretation of large-scale data sets, case studies, and experimental data in the area of applied family health and fertility. Computer is used as a tool in the management and analysis of the data necessary for interpreting and preparing research articles. Ms. Bourque

**477. Assessment of Family Nutrition.** Prerequisite: course 270. 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. Mr. Jelliffe, Ms. Neumann

**478. Anthropometric Nutritional Assessment (2 units).** Prerequisites: course 270 or 477 or equivalent and consent of instructor. Practicum in anthropometry illustrating how it is used in nutritional assessment. Data presentation and interpretation are covered. There are didactic sessions, readings, demonstrations, and practical experience in clinical anthropometric techniques. Ms. Neumann

**478E. Cytogenetics Practicum (1 unit).** Prerequisites: courses 100A, 112, 170E, 256, consent of instructor. Explanation and applied experiences in cytogenetic laboratory procedures, including culturing, harvesting, microscopy, photography, karyotyping, and interpretation of results. Mr. Alfi

**479. Nutrition Programs and Policies for Families in the Third World.** Lecture, two hours; discussion, two hours. Prerequisites: course 472A or equivalent and consent of instructor. Programs and policies to improve the nutrition of families in Third World countries are considered, with special reference to mothers and young children. Ms. Jelliffe

**479D. Nutrition Education and Training: Third World Considerations (2 units).** Lecture, one hour; student participation, one hour. Prerequisite: course 472A or equivalent and consent of instructor. Problems and priorities in nutrition education and training for families and health workers in Third World countries are reviewed, including new concepts in primary health care services, mass media, communications, and governmental and international interventions. Ms. Jelliffe

**480. Health Education in Clinical Settings.** Lecture, two hours; discussion, two hours. Prerequisites: courses 130, 183, 280, 282, consent of instructor. Analysis of the 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. Ms. Richards

**481. Administrative Relationships in Health Education.** Lecture, two hours; discussion, two hours. Prerequisites: courses 130, 183, 280, consent of instructor. Study of administration concepts; relationships and applicability to health education settings. Responsibility and authority for health education in organizations and other groups. Ms. Li

**482. Practicum in Health Education (4 or 8 units).** Discussion, two hours; fieldwork, six or eighteen hours. Prerequisites: courses 182, 280, consent of instructor. Study of community and group-felt needs as reflected in behavior. Analysis of data for understanding, planning, implementing, and evaluating need-directed health education and medical care programs. Ms. Richards

**483. Social Interventions for Health Promotion and Evaluation.** Lecture, two hours; discussion, one hour; seminar, one hour. Prerequisites: courses 182, 183, 280, or equivalent, and 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 the contexts of planned change in health-related behaviors. Mr. Kar

**484. Introduction to Program Evaluation.** Lecture, two hours; discussion, two hours. Prerequisites: course 100A, three courses in social science, or equivalent, and consent of instructor. An introduction to the principles of program evaluation as they are applied to public health programs in the community. Mr. Berkanovic

**485. Benefit-Cost Evaluation of Health Programs.** Lecture, two hours; discussion, two hours. Prerequisites: courses 100A, 112, Economics 102, or equivalent, and consent of instructor. Cost-benefit and cost-effectiveness principles and techniques employed to evaluate public health programs and projects. Mr. Rada

**486. Death, Suicide, and Homicide: A Public Health Perspective.** Lecture, three hours; field trips, outside readings, and reports, one hour. Prerequisites: courses 100A or 103, 112, 182, 183, or equivalent, and consent of instructor. Identification and discussion of the role of public health in suicide and homicide prevention, and death and dying. Lectures range from vital statistics to the role of the behavioral scientist in prevention, intervention, and postvention of suicide and homicide. Ms. Allen

**487. Health Applications of Community Organization.** Seminar, three hours; fieldwork, four hours. Prerequisites: courses 182, 183, 287, at least one other public health course, or equivalent, and consent of instructor. Application of community organization methods to health problems and health education programs, including community-based needs assessment, planning and developing community-based projects, and evaluation. Emphasis on organizational and process skills; class fieldwork project. Mr. Brown

**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 help participants improve both their prose style and their editorial abilities. May not be applied toward any degree requirements. S/U grading. Mr. Bjork

**495. Teacher Preparation in Public Health (2 units).** Prerequisites: eighteen units of cognate courses in area of specialization and consent of department Chair. May not be applied toward the 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. The course is used to record enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. No more than eight units may be applied toward the master's degree minimum total course requirement; may not be applied toward the minimum graduate course requirement. S/U grading.

**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 the 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 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 the M.P.H. and M.S. minimum total course requirement; may not be applied toward the 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 requirements. May be repeated for credit. S/U grading.

## Environmental Science and Engineering (Interdepartmental)

73-271 Center for Health Sciences, 825-7675

### Professors

Orson L. Anderson, Ph.D. (*Earth and Space Sciences*)

David J. Chapman, Ph.D. (*Biology*)

Malcolm S. Gordon, Ph.D. (*Biology*)

William E. Kastenberger, Ph.D. (*Engineering and Applied Science*)

Robert A. Mah, Ph.D. (*Public Health*)

Clemens A. Nelson, Ph.D. (*Earth and Space Sciences*)

Richard L. Perrine, Ph.D. (*Engineering and Applied Science*)

David H. Wegman, Ph.D. (*Public Health*)

Morton G. Wurtele, Ph.D. (*Atmospheric Sciences*)

Jeffrey I. Zink, Ph.D. (*Chemistry*)

### Associate Professors

Climis A. Davos, Ph.D. (*Public Health*)

Mohammad G. Mustafa, Ph.D. (*Public Health and Medicine*)

Michael K. Stenstrom, Ph.D. (*Engineering and Applied Science*)

Jane L. Valentine, Ph.D. (*Public Health*)

### Assistant Professor

Derek C. Montague, Ph.D. (*Atmospheric Sciences*)

### Adjunct Professor

Leona M. Libby, Ph.D.

### Adjunct Assistant Professors

William Dritschilo, Ph.D.

Laura M. Lake, Ph.D.

Bart B. Sokolow, D.Env.

### Lecturers

Robert G. Lindberg, Ph.D. (*Public Health*)

Paul M. Merfield, Ph.D. (*Earth and Space 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 program in environmental science and engineering, 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, ecosystems/geography, 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 largely from the College of Letters and Science, the program is administered through the School of Public Health.

## Doctor of Environmental Science and Engineering

### Admission

In addition to meeting University minimum standards, you must have an excellent scholastic record and must be acceptable to the interdepartmental committee. You must hold a bachelor's and master's degree in engineering, public health, or one of the natural sciences to be formally admitted to the program. Students with a bachelor's degree may be informally affiliated with the program while earning a master's degree in one of the participating departments and are encouraged to participate in the colloquia.

Three letters of recommendation are required for admission. Subject to available funds, the program offers fellowships to eligible first-year students. Prospective students may write for descriptive brochures to the Environmental Science and Engineering Program, UCLA School of Public Health, Los Angeles, CA 90024.

## Major Fields or Subdisciplines

Specialties within the program include, but are not limited to, air quality, water resources, geological and solid earth problems including resource conservation, problems associated with energy production, and the biological impact of man's activities. Also, you may slant your work toward greater emphasis either on the science and engineering side or on the science policy side of your specialty.

## Course Requirements

A minimum of nine courses after admission to the program, and usually more than nine, are required. You will be guided in the selection of the course program by your program committee. Courses taken outside your own disciplinary area will often be upper division undergraduate courses. Lower division courses may also be required but cannot be applied toward the minimum course requirement. Individual reading or study courses may be taken under the guidance of a qualified faculty member.

You must complete a program of required breadth courses in four of the five following general areas (excluding your specialty area):

*Biology:* Five courses, including environmental biology, microbiology, and public health.

*Chemistry:* Five courses, including organic and environmental chemistry.

*Earth Sciences:* Four courses, including geology and meteorology.

*Engineering and Mathematics:* Seven courses, including calculus (one full year), energy and environmental engineering, and statistics.

*Social Sciences:* Five approved courses from architecture and urban planning, economics, law, management, and political science.

Courses taken during undergraduate or master's work may be applied toward this requirement with approval of the interdepartmental committee or graduate adviser. Upper division or graduate courses taken in this program may be applied toward the nine required courses. All breadth courses must be taken for a letter grade.

While completing breadth requirements, full-time students will normally enroll in 18 units per quarter, including Environmental Science and Engineering 411 which is required each quarter.

Courses may be substituted with proper approvals. In general, courses to be substituted must fall within the same general area.

When the breadth requirements are near completion, you will enroll for three successive quarters in courses 400A, 400B, 400C (the problems course — eight units per quarter).

You may also take several environmental workshops concurrent with the environmental problems course as your committee and the faculty member in charge of the course may require.

## Qualifying Examinations

Beginning in your first quarter in the program, you must pass four out of eight two-hour cumulative examinations, which are offered four times a year. You must attempt each examination offered after you begin, or it is counted as a fail. Thus, you have a maximum of two years to complete the requirement. The examinations are designed to test awareness of the current literature in environmental science and engineering.

When you have completed all other course requirements and are in the final quarter of the problems course, a doctoral committee will be established. The committee conducts the University Oral Qualifying Examination, which explores the depth, breadth, and extent of your preparation, with appropriate emphasis on practical problems and situations. After successful completion of the oral examination and the problems course requirements, you are advanced to candidacy.

In case of failure, you may repeat the oral examination once after completing any additional coursework or individual study the doctoral committee may recommend.

## Internship

Once you have been advanced to candidacy, an 18- to 24-month internship in your field of interest will be arranged at an outside institution. Arrangements for the internship are your responsibility and must be approved by the doctoral committee, the interdepartmental committee, and the Dean of the Graduate Division. Supervision during the field training experience will be by your doctoral committee.

## Final Report and Oral Examination

A dissertation is not required. However, after returning to UCLA following the internship, you must participate for a final quarter in the problems course and prepare a complete written report on the internship program. The report must demonstrate that you have effectively applied to your study, program, or project the knowledge, concepts, and principles acquired during your academic preparation. If the report is satisfactory as judged by your committee, you give one or more seminars in an environmental colloquium. If the seminar and all other elements of your performance are judged satisfactory, you are awarded the degree of Doctor of Environmental Science and Engineering (D.Env.).

Currently, the final oral examination is routinely required in this program. The examination may be held before you have prepared the final report, but passing the examination does not imply approval of the final report.

## Graduate Courses

**400A. Environmental Science and Engineering Problems Course (8 units).** Prerequisite: consent of instructor and program Chair. Primarily intended for students enrolled in the 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 Chair. 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 Chair. Multidisciplinary technical and socioeconomic analysis and prognosis of significant current environmental problems.

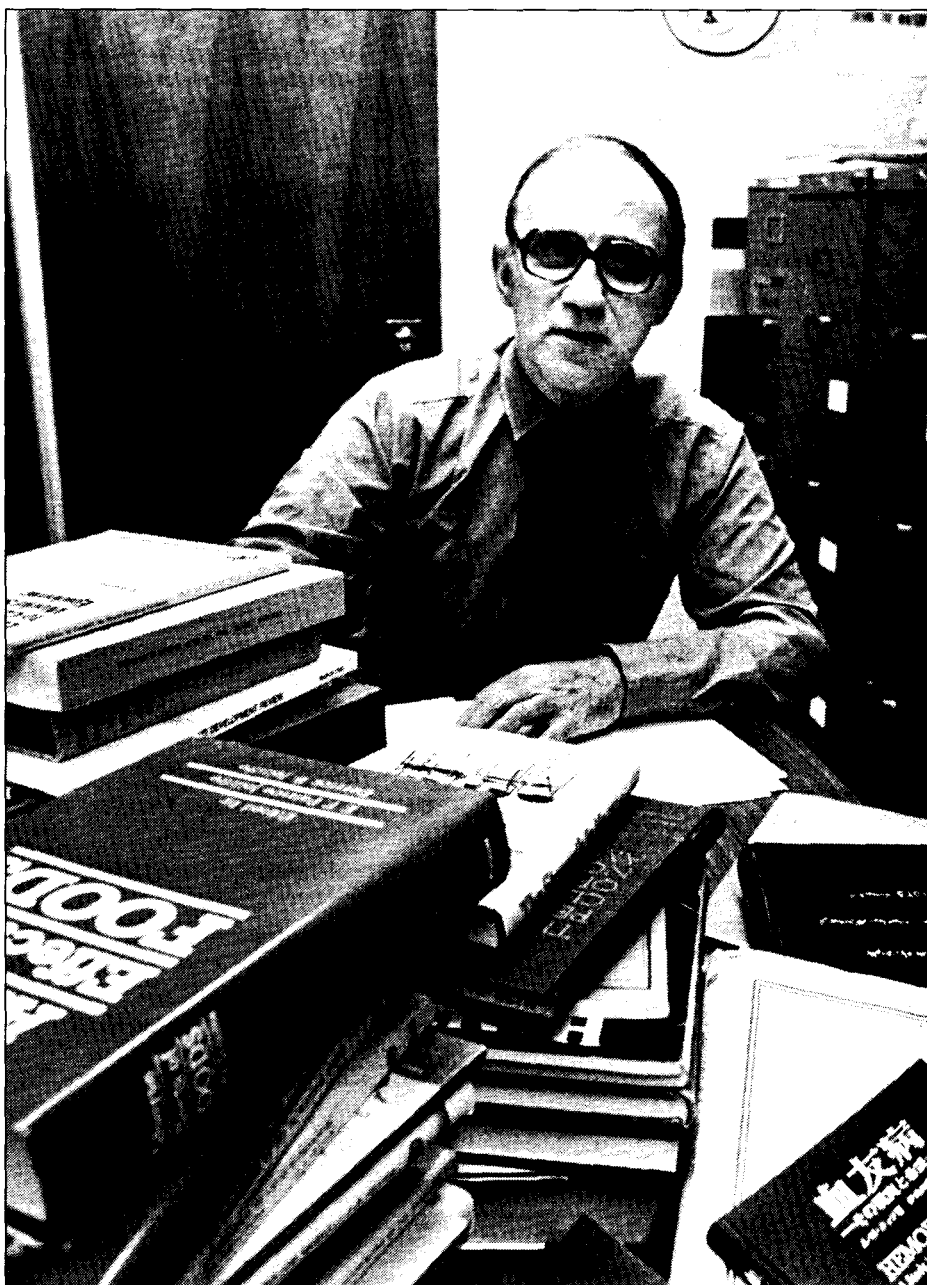
**400D. Environmental Science and Engineering Problems Course (8 units).** Prerequisites: successful completion of course 400C and of an internship approved by the Environmental Science and Engineering Interdepartmental Committee. Multidisciplinary technical and socioeconomic analysis and prognosis of significant current environmental problems.

**410. Environmental Science and Engineering Workshop (2 units).** Prerequisite: consent of instructor. Primarily intended for students enrolled in the environmental science and engineering doctoral program. Development of analytical or experimental skills essential to the solution of environmental problems studied within courses 400A, 400B, 400C, and 400D.

**411. Environmental Science and Engineering Seminar (2 units).** Prerequisite: consent of instructor. Required of graduate students in environmental science and engineering each quarter in residence. Current topics in 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, program Chair, and Graduate Dean, and host campus instructor, department Chair, and Graduate Dean. The course is used to record the enrollment of UCLA students in courses taken under cooperative arrangements with neighboring institutions. S/U grading.

**596. Directed Individual or Tutorial Studies (2 to 8 units).** Prerequisite: consent of instructor and program Chair. Supervised investigation of advanced environmental problems. S/U grading.



# Appendix

## Nondiscrimination

The University of California, in compliance with Titles VI and VII of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Sections 503 and 504 of the Rehabilitation Act of 1973, the Age Discrimination in Employment Act of 1967, and the Age Discrimination Act of 1975, does not discriminate on the basis of race, color, national origin, religion, sex, handicap, or age in any of its policies, procedures, or practices; nor does the University, in compliance with Section 402 of the Vietnam Era Veterans Readjustment Act of 1974 and Section 12940 of the State of California Government Code, discriminate against any employees or applicants for employment because they are disabled veterans or veterans of the Vietnam era or because of their medical condition (as defined in Section 12926 of the California Government Code), their ancestry, or their marital status; nor does the University discriminate on the basis of citizenship, within the limits imposed by law or University policy; nor does the University discriminate on the basis of sexual orientation. This nondiscrimination policy covers admission, access, and treatment in University programs and activities, and application for and treatment in University employment.

In conformance with University policy and pursuant to Executive Orders 11246 and 11375, Section 503 of the Rehabilitation Act of 1973, and Section 402 of the Vietnam Era Veterans

Readjustment Act of 1974, the University of California is an affirmative action/equal opportunity employer.

Inquiries regarding the University's equal opportunity policies may be directed to the Campus Counsel, 2241 Murphy Hall, UCLA, or the Director of the Office for Civil Rights, United States Department of Education.

Students may complain of any action which they believe discriminates against them on the ground of race, color, national origin, religion, sex, sexual orientation, or handicap and may contact the Dean of Students Office, 2224 Murphy Hall, for further information and procedures.

## Residence for Tuition Purposes

Students who have not been residents of California for more than one year immediately prior to the residence determination date for each term in which they propose to attend the University are charged, along with other fees, a nonresident tuition fee. 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 the establishment of legal residence for tuition purposes at the University

of California are governed by the California Education Code and by Standing Orders of The Regents of the University of California. Under these rules residence for tuition purposes can be established by adult citizens or by certain classes of aliens. There are also particular rules applicable to the residence classification of minors (under 18) in that such residence is generally regarded as being derived from the parent or parents with whom the minor last resided.

### Who Is a Resident?

In order to be classified a resident for tuition purposes, an individual must have established his or her residence in California for more than one year immediately preceding the residence determination date for the term during which he or she proposes to attend the University and relinquished any prior residence. An individual must couple physical presence within this state for one year with objective evidence that such presence is consistent with intent to make California his or her permanent home and, if these steps are delayed, the one-year durational period will be extended until both presence and intent have been demonstrated for one full year. Indeed, physical presence within the state solely for educational purposes does not constitute the establishment of California residence under state law, regardless of the length of stay. A woman's residence shall not be derivative from that of her husband or vice versa.

## Salary and Employment Information, University of California

| FIELD OF STUDY       | DEGREE LEVEL OF GRADUATES           |               |               | PROBABLE OR DEFINITE JOB COMMITMENT <sup>2</sup> |
|----------------------|-------------------------------------|---------------|---------------|--|
|                      | BACHELOR'S                          | MASTER'S      | DOCTORATE     |  |
|                      | AVERAGE MONTHLY SALARY <sup>1</sup> |               |               |  |
| Engineering          | \$1,794-2,375                       | \$1,764-2,672 | \$2,000-3,750 | 77.2%  |
| Humanities           | 900-1,840                           | —             | —             | 78.3   |
| Life Science         | —                                   | —             | —             | 78.0   |
| Management           | 1,083-1,980                         | 1,701-2,628   | —             | 91.5   |
| Physical Science     | 1,130-2,106                         | —             | —             | 80.0   |
| Social Science       | 1,000-1,775                         | 1,083-2,000   | —             | 78.3   |
| Medical <sup>3</sup> | —                                   | —             | 1,423         | 100.0  |
| Dental <sup>3</sup>  | —                                   | —             | 2,433         | 81.3   |

<sup>1</sup>Source: (Except for Medical and Dental — see footnote 3.) A national survey of a representative group of colleges conducted by the College Placement Council, representing the 80 percent range of offers for January 1984 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.

<sup>2</sup>Source: *The Job Market for UCLA's 1983 Graduates*. Percentages are based only on those students who planned to work immediately after graduation.

<sup>3</sup>Source: *The Job Market for UCLA's 1981 Graduates*. Percentages are based only on those students who planned to work immediately after graduation. Medical and dental salaries are shown as means rather than ranges. The medical mean is derived from a range of resident salaries.

### Establishing the Requisite Intent to Become a California Resident

Relevant evidence which can be relied on to demonstrate one's intent to make California the permanent residence include registering to vote and voting in California elections; designating California as the permanent address on all school, employment, and military records; obtaining a California driver's license or if a nondriver, a California identification card; obtaining California vehicle registration; paying California income taxes as a resident, including income earned outside California from the date residence is established; establishing an abode where one's permanent belongings are kept within California; licensing for professional practice in California; and the absence of this evidence in other states during any period for which residence in California is asserted. Documentary evidence may be required. All relevant evidence will be considered in the classification determination.

### Adult Aliens

An adult alien student is entitled to resident classification if the student has been lawfully admitted to the United States for permanent residence in accordance with all applicable laws of the U.S. and has thereafter established and maintained residence in California for more than one year immediately prior to the residence determination date. Nonresident aliens present in the United States under the terms of visa classifications A, E, G, I, or K, who can demonstrate California residence for more than one year prior to the term while holding such visa, may be entitled to resident classification. Inquiries should be directed to the Residence Deputy.

### General Rules Applying to Minors

The residence of the parent with whom an unmarried minor (under age 18) child lives is the residence of the unmarried minor child. The residence of an unmarried minor who has a parent living cannot be changed by his or her own act, by the appointment of a legal guardian, or by relinquishing a parent's right of control. When the minor lives with neither parent, residence is that of the parent with whom the student lived last. The minor may establish residence when both parents are deceased and a legal guardian has not been appointed. Where the residence of the minor is derived, the California residence of the parent from whom it is derived must satisfy the one-year durational requirement.

### Specific Rules Applying to Minors

(1) **Minor Aliens** — A student who is a minor alien shall be entitled to resident classification if the student and the parent have been lawfully admitted to the United States for permanent residence in accordance with all applicable laws of the U.S., provided that the parent has had residence in California for more than one

year after admission to permanent residence prior to the residence determination date for the term applicable.

(2) **Divorced or Separated Parent Situations** — The student must move to California to live with the California resident parent while still a minor (before the 18th birthday) in order to receive derivative California resident status. Otherwise, he or she will be treated like any other adult coming to California to establish legal residence.

(3) **Parent of Minor Moves from California** — A student who remains in the state after his or her parent, who was domiciled in California for at least one year immediately prior to leaving and has, during the student's minority and within one year immediately prior to the residence determination date, established residence elsewhere, shall be entitled to resident classification. This exception continues until the student has attained the age of majority and has resided in the state the minimum time necessary to become a resident so long as, once enrolled, he or she maintains continuous attendance at an institution.

(4) **Self-Support** — Nonresident students who are minors or 18 years of age and who have demonstrated the intent to make California their permanent home, and can evidence that they have been self-supporting and actually present within California for the entire year immediately prior to the residence determination date, may be eligible for resident status.

(5) **Two-Year Care and Control** — A student shall be entitled to resident classification if immediately prior to the residence determination date, he or she has lived with and been under the continuous direct care and control of any adult or adults other than a parent for not less than two years, provided that the adult or adults having such control have been California residents during the year immediately prior to the residence determination date. This exception continues until the student has attained the age of majority and has resided in the state the minimum time necessary to become a resident student, so long as continuous attendance is maintained at an institution.

### Exemptions from Nonresident Tuition

(1) **Member of the Military** — A student who is a member of the United States military stationed in California on active duty, except a member of the military assigned for educational purposes to a state-supported institution of higher education, may be exempt from the nonresident tuition fees until he or she has resided in the state the minimum time necessary to become a resident. He or she must provide the Residence Deputy with a statement from the commanding officer or personnel officer stating the assignment to active duty in California is not for educational purposes and must include the dates of assignment to the state.

(2) **Spouse or Other Dependents of Military Personnel** — Exemption from payment of the nonresident tuition fee is available to a spouse or to a natural or adopted child or stepchild who is a dependent of a member of the United States military stationed in California on active duty. Such exemption shall be maintained until the student has resided in California the minimum time necessary to become a resident. The student must petition for this exemption each term he or she is eligible. If a student is enrolled in an institution and the member of the military (a) is transferred on military orders to a place outside this state and continues to serve in the Armed Forces or (b) retires from active duty immediately after having served in California on active duty, the student shall retain this exemption under conditions set forth above.

(3) **Child or Spouse of Faculty Member** — The unmarried, dependent child under age 21 or the spouse of a member of the University faculty who is a member of the Academic Senate may be eligible for a waiver. Confirmation of the faculty member's membership on the Academic Senate shall be secured each term before this waiver is granted.

(4) **Child of University Employee** — The unmarried, dependent child under 21 of a full-time University employee whose assignment is outside California (e.g., Los Alamos Scientific Laboratory) and who has been employed by the University for more than one year may be entitled to a waiver of the nonresident fee. The parent's employment status with the University shall be ascertained each term that the student requests the waiver.

(5) **Children of Deceased Public Law Enforcement or Fire Suppression Employees** — Children of deceased public law enforcement or fire suppression employees who were California residents and who were killed in the course of fire suppression duties or law enforcement duties may be entitled to an exemption of the nonresident fees.

### Maintaining Residence During a Temporary Absence

A student's temporary absence from the state for business or educational purposes will not necessarily constitute loss of California residence unless the student has acted inconsistently with the claim of continued California residence during his or her absence. The burden is on the student to show retention of California residence during an absence from the state. Steps a student (or parent of a minor student) should take to retain California resident status for tuition purposes include:

(1) Continue to use a California permanent address in all records — educational, employment, etc.

(2) Satisfy California resident income tax obligations. Individuals claiming permanent California residence are liable for payment of income taxes on their total income from the date

they establish California residence. This includes income earned in another state or country.

(3) Retain California voter's registration, voting by absentee ballot.

(4) Maintain California driver's license and vehicle registration. If it is necessary to change driver's license and/or vehicle registration while temporarily residing in another state, these must be changed back to California within ten days for the driver's license and within one year or when registration expires (whichever comes first) for vehicle registration.

### Reclassification Petitions

Students MUST PETITION IN PERSON at the Registrar's Office for a change of classification from nonresident to resident status. All changes of status must be initiated prior to the late registration period for the term of attendance for which the student seeks reclassification.

In addition to the criteria listed above, a student seeking reclassification must be financially independent of parents domiciled outside of California. Graduate students who are teaching assistants, research assistants, or teaching associates employed on a 0.49 or more time basis are exempt from the financial independence requirement. For detailed information regarding classification, contact the Campus Residence Deputy in 1134 Murphy Hall (825-3447).

### Time Limitation on Providing Documentation

If additional documentation is required for either an initial residence classification or reclassification but is not readily accessible, the student will be allowed a period of time no later than the end of the applicable term to provide such documentation.

### Incorrect Classification

All students classified incorrectly as residents are subject to reclassification and to payment of all nonresident fees not paid. If incorrect classification results from false or concealed facts by the student, the student is 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 CAMPUS RESIDENCE DEPUTY, Office of the Registrar, 1134 Murphy Hall, 405 Hilgard Avenue, Los Angeles, CA 90024 (825-3447) or to the Legal Analyst-Residence Matters, 590 University Hall, 2200 University Avenue, Berkeley, CA 94720. NO OTHER UNIVERSITY PERSONNEL ARE AUTHORIZED TO SUPPLY INFORMATION RELATIVE TO RESIDENCE REQUIREMENTS FOR TUITION PURPOSES. The student is cautioned that this summation is NOT a

complete explanation of the law regarding residence. A copy of the regulations adopted by The Regents of the University of California is available for inspection in the Registrar's Office. Please note that changes may be made in the residence requirements between the publication date of this statement and the relevant residence determination date. Any student, following a final decision on residence classification by the Residence Deputy, may make a written appeal to the Legal Analyst within 120 days of the notification of the final decision by the Residence Deputy.

### 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 a student is a legal resident for tuition purposes. Registration cannot be processed without this information. The Registrar's Office on campus maintains the requested information. The student has the right to inspect University records containing the residence information requested on the form.

## 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.

### Student Grievance Procedures

Grounds for student grievance are the application of nonacademic criteria such as considerations of race, politics, religion, sex, or evalua-

tion of student work by criteria not directly reflective of performance related to course requirements. Students having such a grievance should talk to the instructor of the course, the department Chair, the dean or provost of the college or school, the Vice Chancellor — Faculty Relations, and the Ombudsman, in that sequence.

If the dispute is not resolved through these discussions, a grievance may be filed with the Charges Committee of the Academic Senate (3125 Murphy Hall). If it is determined that probable cause exists for violation of the faculty code of conduct, the grievance is then brought to the Committee on Privilege and Tenure.

If an instructor in charge of a course has been determined by the Committee on Privilege and Tenure to have assigned a grade on any basis other than academic grounds, that committee shall inform the divisional Academic Senate Chair. Within a period of two weeks after notification, guided by the Committee on Committees, the divisional Senate Chair shall establish an ad hoc committee to determine whether the grade shall be changed. The ad hoc committee shall consist of at least three members, with at least one member a representative of the department involved. The ad hoc committee will obtain whatever records are available and use these records to make a final decision concerning the grade. If the records are not adequate, then the committee may assign a grade of Pass, or allow the student to repeat the course without penalty. The ad hoc committee will report to the divisional Chair, who shall report the change of grade to the Registrar. In order to protect the student, the grade shall be changed, if warranted, within four weeks following the formation of the ad hoc committee.

### Correction of Grades

All grades, except DR, I, and IP, are final when filed by an instructor in the end-of-term course report. However, the Registrar 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 division 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.



### Undergraduate Final Examinations

No student shall be excused from assigned final examinations except as provided below.

The instructor in charge of an undergraduate course shall be 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 methods 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 shall not exceed three hours' duration and shall be given only at the times and places established by the department Chair and the Registrar.

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 quarter of instruction, during which period students shall have access to their examinations.

### Student Conduct: Violation of University Policies

Students are subject to disciplinary action for several types of misconduct, including dishonesty such as cheating and plagiarism; theft or damage to property; unauthorized entry to University facilities; disruption of teaching, research, or administrative procedures; physical abuse or threats of violence; disorderly conduct; disturbing the peace; the use, possession, or sale of narcotic or illegal drugs on campus; and violations of other University policies or campus rules and regulations. Further information on these infractions and on the procedures of student discipline are contained in the *University of California Policies Applying to Campus Activities, Organizations, and Students* (Parts A and B), and *UCLA Activity Guidelines*. Copies of these booklets are available in the Dean of Students Office, 2224 Murphy Hall, or the Organizational Relations Office, 161 Kerckhoff Hall.

### Disclosure of Student Records

Pursuant to the Federal Family Educational Rights and Privacy Act of 1974, the California Education Code as amended in 1976, 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 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 the University 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 and subsequently through a hearing; and (5) to file complaints with the Department of Health, Education, and Welfare regarding alleged violations of the rights accorded them by the Federal Act.

The University may publish, without the student's prior consent, items in the category of "public information," which are name, address, telephone number, date and place of birth, major field of study, dates of attendance, degrees and honors received, the most recent previous educational institution attended, participation in officially recognized activities (including but not limited to intercollegiate athletics), and the name, weight, and height of participants on intercollegiate athletic teams. Students who do not wish all or part of the items of "public information" disclosed may, with respect to address and telephone number, so indicate on the Student Data Card in the Registration Packet, and with respect to the other items of information, by filling out a Decline to Release Public Information form available in the Registrar's Office, 1105 Murphy Hall.

Student records which are the subject of the Federal and State Laws and the University Policies may be maintained in a wide variety of offices. Students are referred to the *UCLA Campus and Medical Center Directory* which lists all the offices which may maintain student records, together with their campus address, telephone number, and unit head. Students have the right to inspect their student records in any such office subject to the terms of the appropriate Federal and State Laws and the University Policies.

A copy of the Federal and State Laws, the University Policies, and the *UCLA Campus and Medical Center Directory* may be inspected in the office of the Records Management Coordinator, 2256 Murphy Hall. Information concerning these matters and students' hearing rights is also available there.

# 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 chairs, which support the academic activities of distinguished members of the faculty.

At present, UCLA has 52 endowed chairs approved by The Regents of the University of California. They are as follows:

## College of Letters and Science

Narekatsi Chair in Armenian Studies  
 Presidential Chair  
 The "1939" Club Chair  
 UCLA Alumni and Friends of Japanese Ancestry Chair in Japanese American Studies  
 Willard F. Libby Chair in Physical Chemistry  
 Chancellor's Associates Chair  
 Ralph Bunche Chair in International Studies  
 Flint Professorship of Philosophy  
 Saul Winstein Chair in Organic Chemistry

## College of Fine Arts

UCLA Art Council Chair in Art  
 Edward W. Carter Chair in Netherlandish Art

## School of Engineering and Applied Science

Crump Chair in Medical Engineering  
 Hughes Aircraft UCLA Alumni Chair in Manufacturing Engineering  
 Ralph M. Parsons Chair in Chemical Engineering

## Graduate School of Education

Allan M. Cartter Chair in Higher Education  
 George F. Kneller Chair in Education and Philosophy

## School of Law

Connell Chair in Law  
 Gleeson L. Payne Chair in Insurance Law  
 Security Pacific Bank Chair  
 Chair in Entertainment Law

## Graduate School of Management

Allstate Chair in Insurance and Finance  
 Arthur Young Chair in Accounting  
 Harry and Elsa Kunin Chair of Business and Society  
 IBM Chair in Computers and Information Systems  
 Irwin L. Hersh Chair in Money and Banking  
 California Chair in Real Estate and Land Economics  
 Times Mirror Chair in Management Strategy and Policy  
 Warren C. Cordner Chair in Money and Financial Markets  
 William E. Leonhard Chair in Management  
 Edward W. Carter Chair in Business Administration  
 Chauncey Medberry, III Chair in Management

## School of Medicine

Max Factor Family Foundation Chair in Nephrology  
 Castera Chair in Cardiology  
 Bowyer Professorship of Medical Oncology  
 Streisand Chair in Cardiology Sponsored by the American Heart Association  
 Leon J. Tiber, M.D. and David S. Alpert, M.D. Chair in Medicine  
 Edward W. Carter Chair in Internal Medicine  
 Sprague Chair in Molecular Oncology  
 Augustus S. Rose Chair in Neurology  
 Wasserman Chair in Ophthalmology  
 Dolly Green Chair in Ophthalmology  
 Jules Stein Chair in Ophthalmology  
 Charles Kenneth Feldman Chair in Ophthalmology  
 James H. Nicholson Chair in Pediatric Cardiology  
 Eleanor I. Leslie Chair in Neuroscience  
 Joseph Campbell Chair in Child Psychiatry  
 Thomas P. and Katherine K. Pike Chair in Alcohol Studies  
 Della Martin Chair in Psychiatry  
 Judson Braun Chair in Biological Psychiatry  
 Louis D. Beaumont Chair in Surgery  
 Jennifer Jones Simon Chair in Biophysics

## School of Public Health

Fred H. Bixby Chair in Population Policy

# University Administrative Officers

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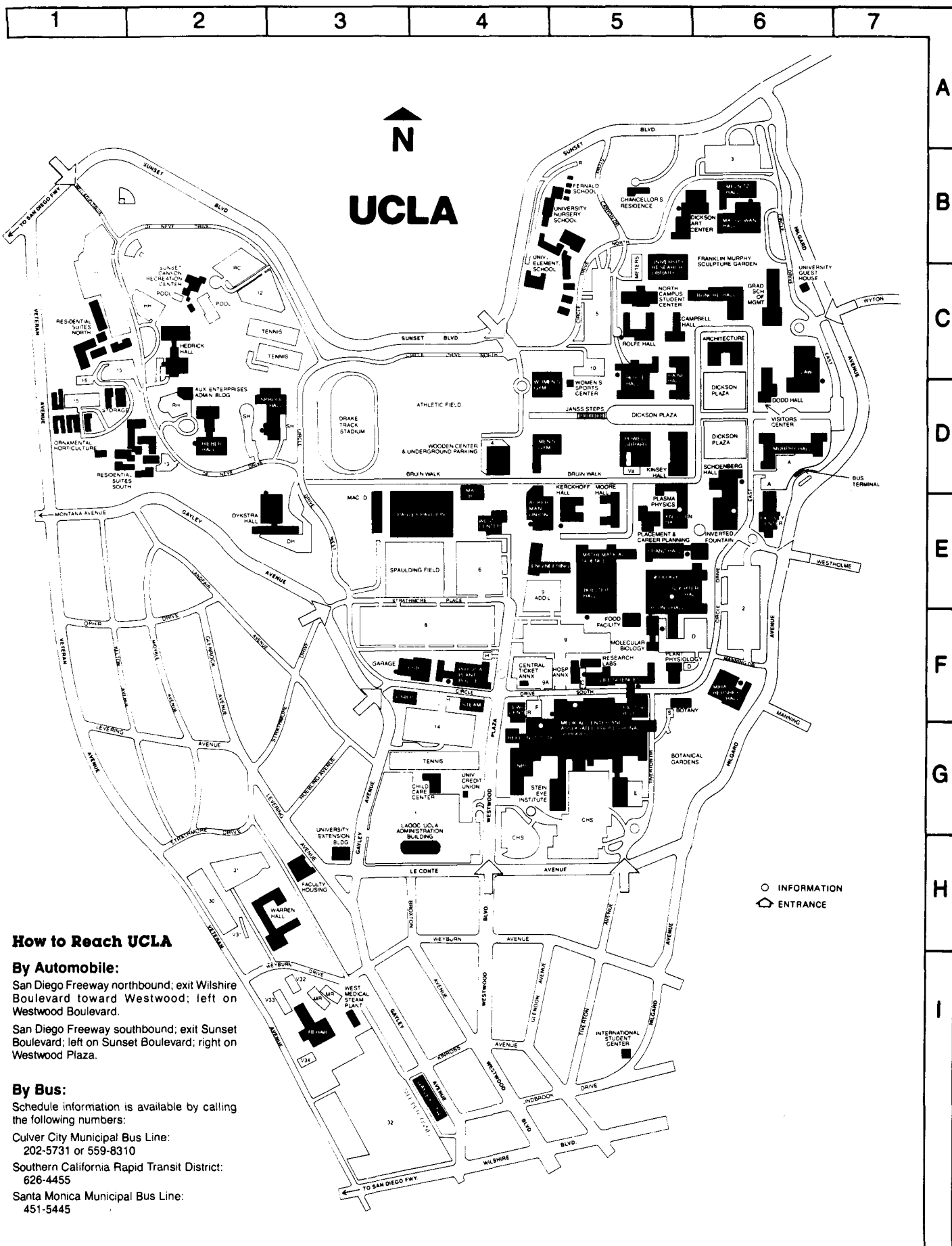
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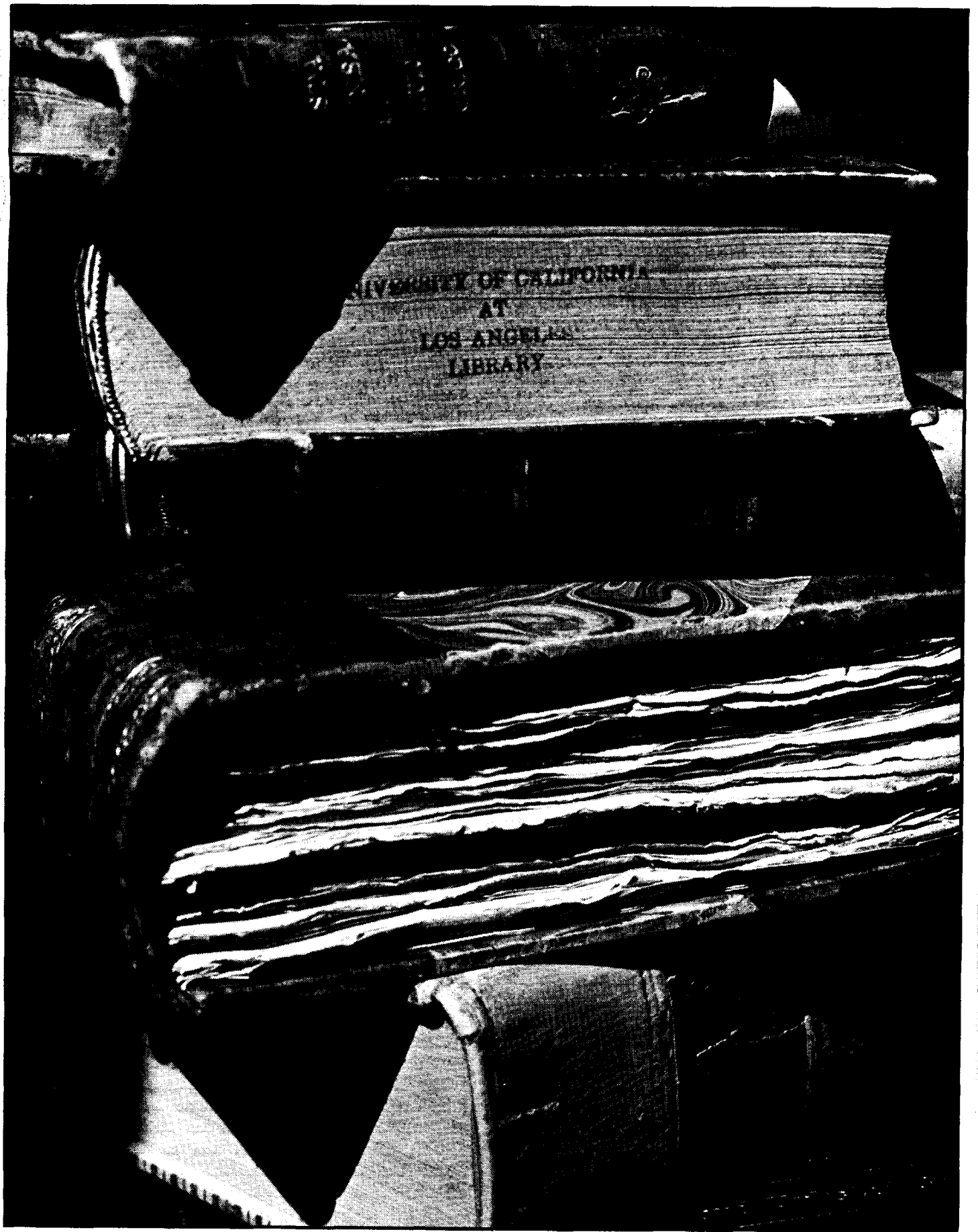
| Building                                     | Grid No. |
|--|----------|
| Ackerman Student Union                       | E5       |
| Architecture                                 | C6       |
| Auxiliary Enterprises Administration Bldg.   | D2       |
| Belt Library, Dickson Art Center             | B6       |
| Boelter Hall                                 | F5       |
| Botanical Gardens                            | G5       |
| Botany                                       | F6       |
| Bunche Hall                                  | C6       |
| Campbell Hall                                | C6       |
| Campus Services Buildings I and II           | F4       |
| Center for Health Sciences                   | G5       |
| Biomedical Cyclotron                         | G5       |
| Brain Research Institute                     | G5       |
| Marion Davies Children's Center              | G5       |
| Dentistry, School of                         | G5       |
| Factor Building                              | G5       |
| Jerry Lewis Neuromuscular Research Center    | G5       |
| Medical Center                               | G5       |
| Medicine, School of                          | G5       |
| Neuropsychiatric Institute                   | G5       |
| Public Health, School of                     | G5       |
| Reed Neurological Research Center            | G5       |
| Jules Stein Eye Institute                    | G5       |
| Chancellor's Residence                       | B6       |
| Child Care Center                            | G4       |
| Court of Sciences Food Facility              | F5       |
| Dickson Art Center                           | B6       |
| Dodd Hall                                    | C7       |
| Drake Track Stadium                          | D3       |
| Dykstra Hall                                 | E3       |
| Engineering I                                | E5       |
| Faculty Center                               | E7       |
| Fernald School                               | B5       |
| Franz Hall                                   | E6       |
| Garage                                       | F4       |
| Gayley Center                                | I4       |
| Geology                                      | E6       |
| Graduate School of Management                | C7       |
| Haines Hall                                  | C6       |
| Hedrick Hall                                 | C2       |
| Mira Hershey Hall                            | F6       |
| International Student Center                 | I5       |
| Kerckhoff Hall                               | E5       |
| Kinsey Hall                                  | D6       |
| Knudsen Hall                                 | E6       |
| LAOOC Administration Building                | H4       |
| Law  | C7       |
| Life Sciences                                | F5       |
| Macgowan Hall                                | B6       |
| Mathematical Sciences                        | E5       |
| Melnitz Hall                                 | B6       |
| Memorial Activities Center B (Morgan Center) | D4       |

| Building                             | Grid No. |
|--------------------------------------|----------|
| Men's Gymnasium                      | D5       |
| Molecular Biology Institute          | F6       |
| Moore Hall                           | E5       |
| Murphy Hall (Administration)         | D7       |
| Franklin Murphy Sculpture Garden     | B6       |
| North Campus Student Center          | C6       |
| Ornamental Horticulture              | D1       |
| Pauley Pavilion                      | E4       |
| Physical Plant Office                | F4       |
| Placement and Career Planning Center | E6       |
| Plant Physiology                     | F6       |
| Plasma Physics                       | E6       |
| Police, Campus                       | F4       |
| Powell Library                       | D6       |
| Rehabilitation Center                | I3       |
| Research Library                     | B6       |
| Residential Suites North             | C1       |
| Residential Suites South             | D2       |
| Rieber Hall                          | D2       |
| Rolfe Hall                           | C6       |
| Royce Hall                           | C6       |
| Schoenberg Hall                      | D6       |
| Slichter Hall                        | E6       |
| Sproul Hall                          | D3       |
| Sunset Canyon Recreation Center      | B2       |
| University Credit Union              | G4       |
| University Elementary School         | B5       |
| University Extension Building        | H3       |
| University Guest House               | B7       |
| University Nursery School            | B5       |
| University Research Library          | B6       |
| Visitors Center (Dodd Hall)          | C7       |
| Warren Hall                          | H3       |
| James E. West Center                 | E4       |
| Women's Gymnasium                    | C5       |
| Wooden Recreation and Sports Center  | D4       |
| Young Hall                           | F6       |

| Parking Structures and Lots | Grid No. |
|-----------------------------|----------|
| Hilgard-Sunset (3)          | B6       |
| Hilgard-Westholme (2)       | E6       |
| Sunset-Westwood (5)         | C5       |
| Westwood-Circle Drive (9)   | F5       |
| Gayley-Landfair (14)        | G4       |
| Gayley-Strathmore (8)       | F4       |
| Medical Visitors (CHS)      | G5       |
| James West Center (6)       | E4       |
| Wooden Center (4)           | D4       |
| Parking Lot 1               | G4       |
| Parking Lot 32              | I3       |



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| <b>Office</b>   | <b>Location</b>                      | <b>Telephone</b><br>(area code 213) |
|---|--------------------------------------|-------------------------------------|
| <b>Academic Advancement Program</b>                           | 1209 Campbell Hall                   | 825-1481                            |
| <b>Accounting Services — Student Services</b>                 | 2333 Murphy Hall                     | 825-5067                            |
| <b>Admissions</b>   |                                      |                                     |
| Undergraduate   | 1147 Murphy Hall                     | 825-3101                            |
| Graduate  | 1247 Murphy Hall                     | 825-1711                            |
| <b>Alumni Association</b>                                     | James West Center                    | 825-3901                            |
| <b>Cashier's Office, Main</b>                                 | 1125 Murphy Hall                     | 825-2201                            |
| <b>Dean of Students</b>                                       | 2224 Murphy Hall                     | 825-3871                            |
| <b>Financial Aid Office</b>                                   | A107 Murphy Hall                     | 206-0432                            |
| <b>Graduate Division</b>                                      |                                      |                                     |
| Affirmative Affairs Office                                    | 1248 Murphy Hall                     | 825-2780                            |
| Fellowship and Assistantship Section                          | 1228 Murphy Hall                     | 825-4129                            |
| Student and Academic Affairs Section                          | 1225 Murphy Hall                     | 825-4226                            |
| <b>Housing Office</b>   | 78 Dodd Hall                         | 825-4491                            |
| <b>International Student Center</b>                           | 1023 Hilgard Avenue                  | 825-3384,<br>208-4587               |
| <b>International Students and<br/>    Scholars, Office of</b> | 297 Dodd Hall                        | 825-1681                            |
| <b>Libraries</b>  |                                      |                                     |
| College Library   | Powell Library Building              | 825-1938                            |
| University Research Library                                   | URL Building, North Campus           | 825-8301                            |
| <b>Ombudsman</b>  | 274 Kinsey Hall                      | 825-7627                            |
| <b>Parking Service</b>  | 280 GS Structure 8                   | 825-9871                            |
| <b>Placement and Career Planning Center</b>                   | PCPC Building                        | 825-2981                            |
| <b>Registrar's Office</b>                                     | 1134 Murphy Hall                     | 825-1091,<br>825-3801               |
| <b>Student Health Service</b>                                 | A2-130 Center for<br>Health Sciences | 825-4073                            |
| <b>Students' Store</b>  | B Level, Ackerman Union              | 825-7711                            |
| <b>Summer Sessions</b>  | 1254 Murphy Hall                     | 825-8355                            |
| <b>University Extension</b>                                   | 10995 Le Conte Avenue                | 825-9971                            |
| <b>Visitors Center</b>  | 100 Dodd Hall                        | 825-4338                            |