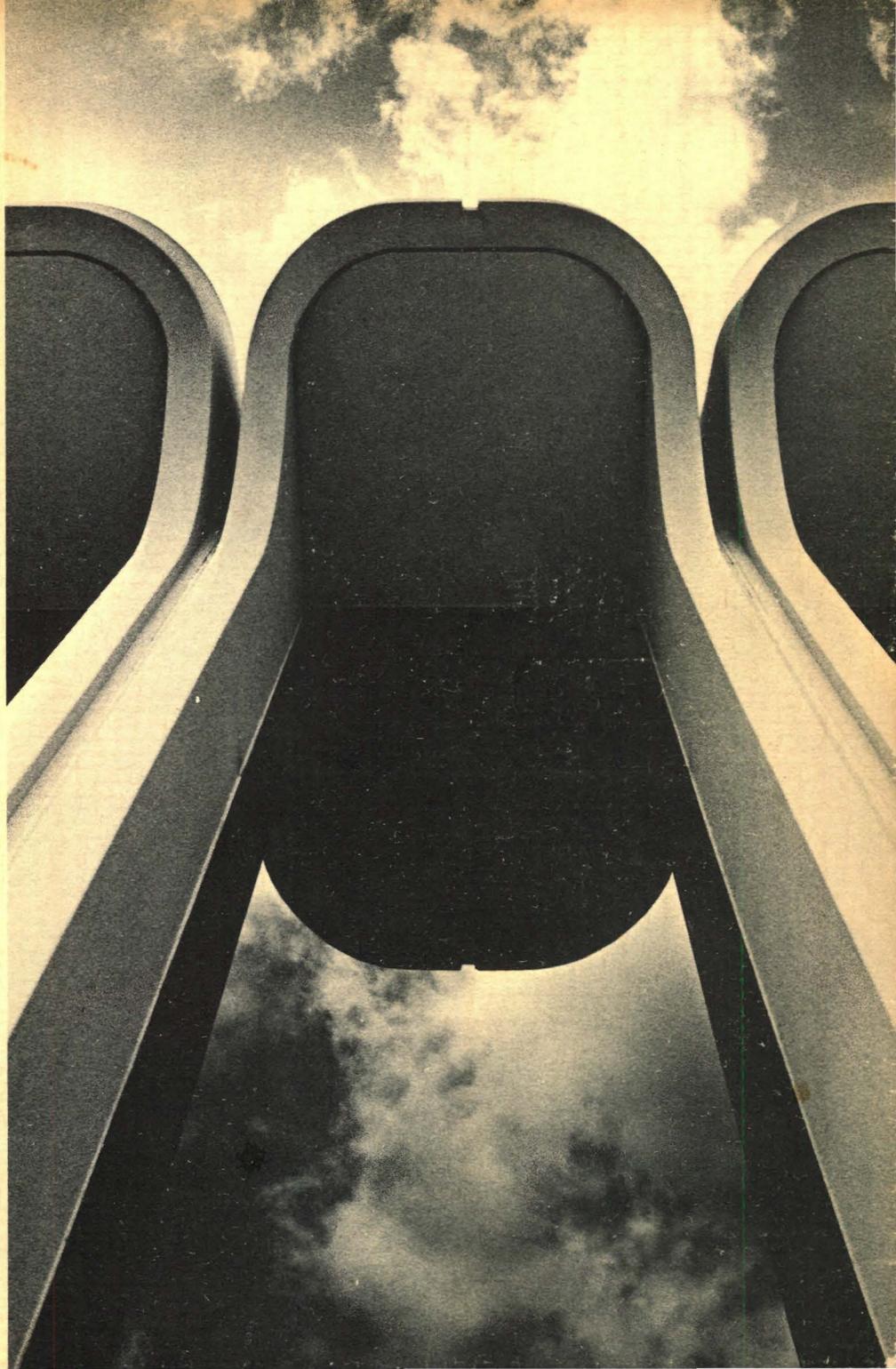


**UCI General
Catalogue
1977-78**



**UCI General
Catalogue
1977-78**

UC IRVINE - 1977-1978

Foreword

The University of California, Irvine — like most universities — is a multi-dimensional academic community. The true nature of the campus consists of things that cannot be expressed with figures, words, or pictures: things that go on in people's minds. It is made up of thousands of individual processes of learning, understanding, and discovery, and it is the quality and interaction of these processes that are the strength of the university. The 1977-78 edition of the UCI General Catalogue offers you a selection of photographs which we feel captures a portion of the UCI experience and reveals something about the character and spirit of our campus. With an awareness that it is impossible to include a totally representative sampling of photographs, we have chosen instead to offer glimpses, vignettes, and images of UCI.

Special thanks go to Philip Channing for his evocative photographs; to Becky Roe, Kathy Tobin, and Helen Garnier for their contributions to the production of the Catalogue; and to members of the Publications Committee for their assistance.

Don Pattison, Publications Manager
Harriet Fleischer, Catalogue Editor

Affirmative Action

The University of California, Irvine is committed to the principles of affirmative action, and to an affirmative action program which safeguards the rights of all persons in the areas of admissions, financial aid, programs, activities, services, and employment. Further information about this program may be found on page 298.

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Academic Calendar

Fall Quarter 1977

Enrollment and	
Payment of Fees	May 23-September 9
Quarter Begins	September 26
Orientation for New Students	September 26-30
Late Enrollment and	
Payment of Fees	September 27-28
Instruction Begins	October 3
Last Day to Change	
Pass/Not Pass Option	October 14
University Day	October 27
Last Day to Add a Class	November 11
Last Day to Drop a Class	
Without Dean's Approval	November 11
Thanksgiving Holiday	November 24-25
Instruction Ends	December 9
Final Examinations	December 12-16
Quarter Ends	December 16
Christmas Holiday	December 23 and 26
New Year's Holiday	December 30 and January 2

Winter Quarter 1978

Enrollment and	
Payment of Fees	November 28-December 9
Quarter Begins	January 4
Orientation for New Students	January 4-6
Late Enrollment and	
Payment of Fees	January 4-6
Instruction Begins	January 9
Last Day to Change	
Pass/Not Pass Option	January 20
Last Day to Add a Class	February 17
Last Day to Drop a Class	
without Dean's Approval	February 17
Holiday	February 20
Instruction Ends	March 17
Final Examinations	March 20-24
Quarter Ends	March 24
Spring Holiday	March 27

Spring Quarter 1978

Enrollment and	
Payment of Fees	March 6-17
Quarter Begins	March 28
Orientation for New Students	March 28-31
Late Enrollment and	
Payment of Fees	March 28-31
Instruction Begins	April 3
Last Day to Change	
Pass/Not Pass Option	April 14
Last Day to Add a Class	May 12
Last Day to Drop a Class	
without Dean's Approval	May 12
Memorial Day Holiday	May 29
Instruction Ends	June 9
Final Examinations	June 12-16
Commencement	June 17
Quarter Ends	June 17

Explanatory Notes

The UCI General Catalogue contains general administrative and academic information, as well as specific descriptions of schools and departments and the courses offered in each.

Because the Catalogue must be prepared well in advance of the year it covers, changes in some programs inevitably will occur. Courses as described in the Catalogue are subject to change without notice, and some listed courses are not offered each year. The quarterly "Schedule of Classes," a publication available from the Registrar's Office shortly before enrollment begins each quarter, provides information on classes to be offered, instructors, class hours, and room assignments. In addition, students should consult the appropriate academic unit for current information. Admission to UCI does not guarantee admission to any particular course.

Course Listings: Undergraduate courses are classified as "lower division" and "upper division." "Lower division" refers to courses numbered 1-99; "upper division" refers to courses numbered 100-199. Courses numbered 200 and above are graduate courses. "Lower division" usually refers to freshman-sophomore courses, "upper division" to junior-senior courses. However, junior and senior students may take lower-division courses, and freshmen and sophomores may take upper-division courses when upper-division standing is not a prerequisite.

Courses with sequential designations (for example, 1A-B-C) normally indicate three-quarter courses beginning in the fall quarter; except as noted, each course in a sequence is prerequisite to the one following. Sometimes two-quarter sequences (for example, 4A-B) are offered. Usually a student may receive credit for completion of the first one-third, two-thirds, or one-half of a sequence. The letter L following a course number usually designates a laboratory course.

The "(4)" or "(4-4-4)" designation following the course title indicates the unit credits toward the 180 quarter units needed to graduate. Each "4" represents four quarter units.

The letters F, W, or S after the course number and title indicate which quarter(s) the course will be offered: fall, winter, or spring. The designation (4) F, W, S indicates a single course offered each quarter which can be taken only once for credit; a (4-4-4) F, W, S designation indicates that credit may be earned in each quarter.

While efforts have been made to provide information on when a course is offered, such information is not always available in time for inclusion in the catalogue.

Prerequisites for courses should be noted carefully; a course has no prerequisites unless indicated.

Although this Catalogue is not intended to include Summer Session courses, a few are listed which complement particular programs; these are indicated by the word "summer."



Introduction

UC IRVINE - 1977-1978

The University of California

The promise of a University of California was expressed in the State Constitution, drafted in Monterey in the gold rush year of 1849. California was admitted to the Union the following year, yet almost 20 years were to pass before the hope for a public university would be realized.

Impetus for the creation of a university came from private citizens and the Federal government, as well as from the State. The Contra Costa Academy, a forerunner of the University of California, was established in 1853 in downtown Oakland by a group of churchmen led by the Reverend Henry Durant. In 1855, that institution was incorporated as the College of California and plans were made to purchase a new site north of Oakland.

In 1853, Congress had bestowed upon the State 46,000 acres of public lands with the stipulation that proceeds of the sale of the land were to be used for a "seminary of learning." The Morrill Act of 1862 gave another grant of public lands to the State for the establishment of a college to teach agriculture, mining, and the mechanic arts. The University thus became California's first and only Land Grant College. Recently it was named a Sea Grant College under the national Sea Grant program of the U.S. Department of Commerce, which is concerned with the development and prudent use of the oceans' resources.

The College of California offered its buildings and lands to the State in 1867 on condition that a "complete university" be created to teach the humanities as well as agriculture, mining, and mechanics. The legislature accepted, and on March 23, 1868 — Charter Day — Governor H.H. Haight signed the act that created the University of California.

The University of California moved to a Berkeley location

soon after its chartering and has grown to include eight additional campuses at Davis, Irvine, Los Angeles, Riverside, San Diego, San Francisco, Santa Barbara, and Santa Cruz. Among the nine University campuses there are five medical schools, three law schools, and the School of Veterinary Medicine, as well as professional schools of business administration, engineering, oceanography, education, and many others. The University also maintains research stations, agricultural field stations, and extension centers in more than one hundred locations throughout California.

The University performs many services in addition to teaching. It is the primary state-supported academic agency for research. Its public services include medical and dental clinics, information services for agricultural and urban populations, and a broad program of continuing education for adults in the arts, business, and professions.

Under contract with the U.S. Energy Research and Development Administration and with support from other agencies, the University operates three national research facilities: the Lawrence Berkeley Laboratory adjoining the Berkeley campus, the Lawrence Livermore Laboratory at Livermore, California, and the Los Alamos Scientific Laboratory at Los Alamos, New Mexico. These laboratories conduct broad and diverse basic and applied research programs in nuclear energy and in problems relating to the production of energy, as well as in environmental and health areas. Other major research facilities include Lick Observatory, White Mountain Research Station for high-altitude research, Laboratory of Radio Astronomy, Bodega Marine Laboratory, Scripps Institution of Oceanography, Institute of Transportation Studies, Statewide Air Pollution Research Center, Space Sciences Laboratory, Hormone Research

8 The University of California

Center, and Philip L. Boyd Desert Research Center, among others.

In 1965, The Regents established the University's Natural Land and Water Reserves System to maintain for scientific and educational use samples of the diversity of California's natural environment. At present there are 23 reserves located throughout the State.

The University of California has an institutional total of 14 Nobel laureates on its faculty. On the nine campuses there are about 155 members of the National Academy of Sciences, the largest number of members from any university or college system. In 1976, faculty members of the University were awarded 41 out of a total of 300 Guggenheim Fellowships granted throughout the nation. Its libraries rank with the finest university libraries in the United States.

Hastings College of the Law and the San Francisco Art Institute, both in San Francisco, are affiliated with the University.

University Professors

One of the University's valuable and unique resources is its roster of University Professors, currently numbering ten, appointed by The Regents upon the recommendation of the President of the University. The title is reserved for certain distinguished faculty members, recognized nationally and internationally as scholars and teachers of exceptional ability. Each University Professor has a home campus but may hold a joint appointment on another campus. All are available to other University of California campuses for limited or extended visits, primarily for teaching and lecturing. A University Professor may visit a number of University of California campuses during the academic year, holding conferences with students and staff and speaking before general public audiences. Arrangements for a visit by a University Professor are made directly by Deans and Department Chairs with the University Professor concerned. A small fund, part of the Intercampus Exchange Program budget, helps defray the University Professor's travel expenses.

At present, the roster reads as follows:

University Professor Melvin Calvin
Director, Laboratory of Chemical Biodynamics
Lawrence Berkeley Laboratory
University of California, Berkeley
Berkeley, California 94720

University Professor Murray Krieger
Department of English and Comparative Literature
Humanities Office Building
University of California, Irvine
Irvine, California 92717

University Professor Josephine Miles
Department of English
454 Wheeler Hall
University of California, Berkeley
Berkeley, California 94720

University Professor Glenn Seaborg
Associate Director
Lawrence Berkeley Laboratory
University of California, Berkeley
Berkeley, California 94720

University Professor Neil Smelser
Department of Sociology
490 Barrows Hall
University of California, Berkeley
Berkeley, California 94720

University Professor, Emeritus, Edward Teller
Associate Director, Emeritus
Lawrence Livermore Laboratory
501 F Building 111; P.O. Box 808
Livermore, California 94550

University Professor Charles Townes
Department of Physics
557 Birge Hall
University of California, Berkeley
Berkeley, California 94720

University Professor, Emeritus, Harold Urey
Department of Chemistry
5314 Physics-Chemistry Building
University of California, San Diego
P.O. Box 109
La Jolla, California 92093

University Professor Sherwood Washburn
Department of Anthropology
232 Kroeber Hall
University of California, Berkeley
Berkeley, California 94720

University Professor, Emeritus, Lynn White, Jr.
Department of History
6345 Bunche Hall
University of California, Los Angeles
Los Angeles, California 90024

University Administration

Under the State Constitution, governance of the University is entrusted to the Board of Regents. The Regents appoint the President of the University — the executive head of the institution — and, with the President's advice, appoint the Chancellors, Deans, and Directors who administer the affairs of the individual campuses and other divisions of the University. Authority in academic matters is delegated by The Regents to the Academic Senate, which determines academic policy for the University as a whole.

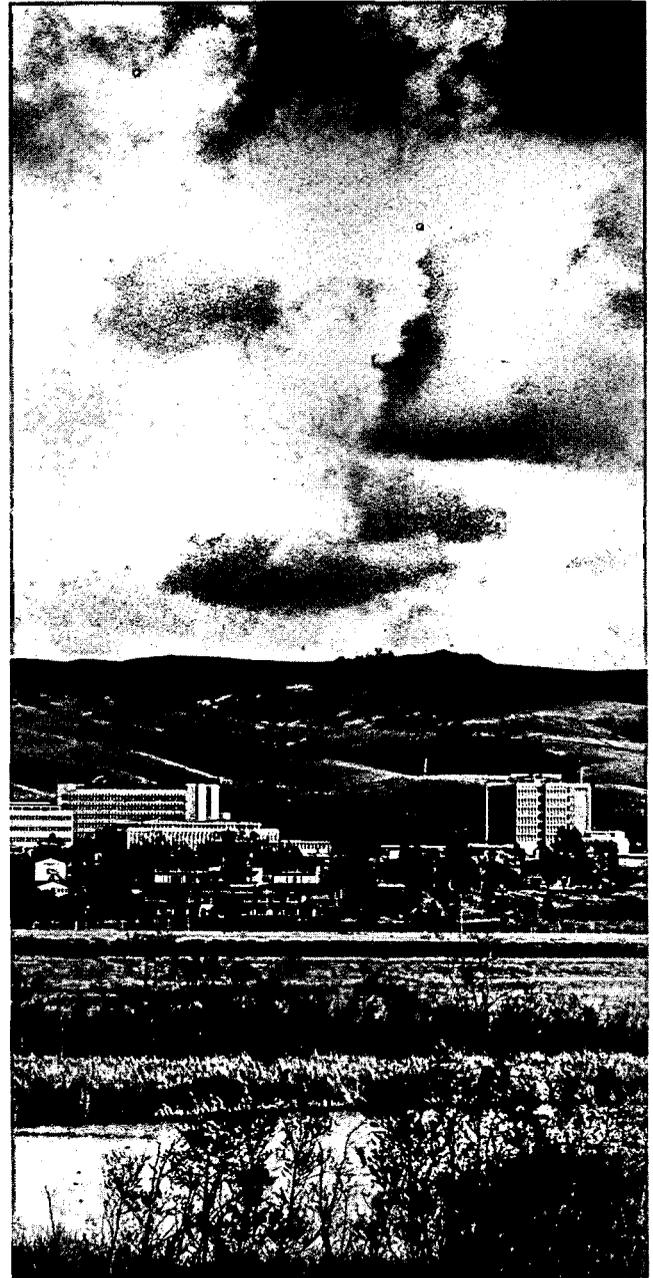
Composition of the Board of Regents was changed by constitutional amendment on November 5, 1974, which provides for a total of seven *ex officio* board members,* and 18 regular members who are appointed by the Governor for 12-year terms after consultation with an advisory committee. In addition, under provisions of the amendment, The Regents have the option of appointing a faculty Regent and/or a student Regent for a one-year term as voting Board members with full rights of participation. The amendment provides that "Regents shall be able persons broadly reflective of the economic, cultural, and social diversity of the State, including ethnic minorities and women." They shall have "full powers of organization and government, subject only to such legislative controls as may be necessary to insure compliance with the terms of the endowments of the University and the security of its funds."

The President is executive head of the total institution. Each of the nine campuses has a Chancellor as its chief administrative officer. The Chancellor is responsible for the organization and operation of the campus, including academic, student, and business affairs.

The Academic Senate, consisting of faculty and certain administrative officers, determines the conditions for admission and degrees, subject to the approval of The Regents, authorizes and supervises courses and curricula, and advises the University administration on the important matters of faculty appointments and promotions and budgets.

Students participate in policymaking at both the campus and Systemwide levels.

**Ex officio* members are: the Governor; the Lieutenant Governor; the Speaker of the Assembly; the Superintendent of Public Instruction; the President and the Vice President of the Alumni Association of the University of California; the President of the University.



The Irvine Campus

The University of California, Irvine is located in the City of Irvine, 40 miles south of Los Angeles and 5 miles inland from the Pacific Ocean. The campus buildings are arranged in a circle around a large central park. The surrounding hills and grazing lands give the campus a rural feeling, even though an estimated two million people live within a 20-mile radius.

The Irvine campus includes 1,510 acres, the 200-acre San Joaquin Fresh Water Marsh Reserve, a sanctuary for waterfowl and wildlife, and the 31-acre University of California Irvine Medical Center.

Classes opened at UCI in October, 1965, with 1,589 students, freshman through postdoctoral. In the fall of 1976, 9,682 students were enrolled, including 7,484 undergraduates, 1,300 graduates, and 898 medical students, health sciences graduate students, and medical residents.

Since UCI was founded, 11,401 degrees have been conferred. Two alumni organizations, the UCI Alumni Association and the Associated Alumni of the UCI College of Medicine, provide service and information to graduates and are dedicated to the educational and financial advancement of UC Irvine.

The majority of students live off campus and commute daily, and most are dependent on cars for transportation. Student parking permits are valid for parking lots located on the perimeter of the campus. Students with or without cars can make use of the campus share-a-ride station, located near Crawford Hall. Bus service to major housing and shopping centers in the county is available. A restaurant, cafeteria, snack bars, and vending machines provide food service on campus. Shopping centers adjacent to the UCI campus contain a variety of service, specialty, and food shops, in addition to a bank, a post office, and a book store.

Beaches about five miles to the west are lined by communities and State Park recreation areas. Two mountain ranges and popular desert resort spas are within a two-hour drive. The climate is usually warm and dry; there is frequently a breeze from the ocean and occasionally fog.

University Relations

The University Relations Office is responsible for visitor information, media relations, publications, public information, the alumni associations, and the Speakers Bureau. For further information about the University of California, Irvine campus, contact the University Relations Office, (714) 833-6922.

ACADEMIC STRUCTURE

The Irvine campus was planned from the beginning with the intention that five fundamental Schools would represent five fundamental areas of knowledge, as well as provide an academic structure for related studies. The organization of major academic units into Schools rather than into Colleges is one of the things that distinguishes Irvine from other campuses of the University. The five Schools are Biological Sciences, Fine Arts, Humanities, Physical Sciences, and Social Sciences. Areas of knowledge which cross these major school boundaries are represented by Departments or Programs, grouped together under the Council on Inter-school Curricula. Included in this grouping are the Program in Social Ecology, the Program in Comparative Culture, and the Department of Information and Computer Science. In addition to the basic Schools and the associated cross-disciplinary Programs and Departments, there are three Schools with a primarily professional orientation: Administration, Engineering, and Medicine. The remaining academic units consist of the Office of Teacher Education and the Department of Physical Education. Descriptions of the instructional programs offered are in the Schools and Departments section of this Catalogue.

Graduate studies at Irvine are administered by the Graduate Division, but all graduate programs and faculty operate within the regular departments. There is no separate graduate faculty. Graduate study, therefore, takes place within the Schools and is related to undergraduate work within the departments. Most research on the campus is conducted at the departmental level and thus also is contained within the Schools.

The Vice Chancellor — Academic Affairs has administrative responsibility for all programs in instruction and research.

Matters of educational policy, including approval of programs, courses, and grades, are the responsibility of the Irvine Division of the Academic Senate and its committees. The Irvine Division is part of the Academic Senate of the University of California and is composed of faculty members. For further information on the administration of the entire University of California system, see page 9.

INSTRUCTIONAL AND RESEARCH FACILITIES

University Library

The University Library is a rapidly growing and increasingly important resource for teaching and research with a collection of almost 800,000 volumes, supplemented by 300,000 units of microform. The collection and offices occupy all six floors of the Library Building, which was designed to provide maximum shelving and reader space, while following its primary purpose of bringing books and students together. With the exception of materials housed in special units such as the Government Publications Department and the Department of Special Collections, and reserve books in heavy demand, all periodicals and books are on open shelves and easily accessible to all readers.

Reference books, numbering some 23,000 volumes, include bibliographies, dictionaries, encyclopedias, handbooks, and indexes, and are arranged in an open-shelf collection. Librarians in the Reference Department assist in the use of the reference tools and are prepared to find answers for a wide variety of library and campus questions. Informal instruction and guides designed for specific service areas are available at every public service desk. Formal instruction is offered through a course which introduces students to library research strategy techniques (Humanities 75: Biblio Strategy). Bibliographical sessions for classes can be arranged by application at the Reference Desk.

The Library's Government Publications Department contains a collection approaching 250,000 publications, issued by the U.S. government, Canada, the State of California, various local governments, and international organizations. The Government Publications Department also contains the Orange County Public Affairs Collection, a body of current material on local affairs which provides a facility for the systematic acquisition of information and material from both governmental and nongovernmental agencies in a variety of formats. The Department is professionally staffed to assist patrons in their use of the collections.

The Library's Department of Special Collections contains noncirculating holdings of rare books and early printed works, noteworthy or finely printed editions, exceptionally costly or fragile works, manuscripts, special subject collections in regional California history, British naval history, contemporary poetry, dance, political pamphlet literature, and the official University archives.

The Learning Resources Center is equipped with various audio-visual equipment, cassette tapes, television, and other devices designed to enhance the learning process. Films for instructional purposes may be ordered through the Center.

The Library copying service, supplemented by coin-operated copying machines, makes it possible to obtain reproduction service at all times. Microtext materials and various types of reading equipment are brought together in special areas. Other facilities include group study rooms, a graduate study room, book lockers, and rooms containing study aids for blind and partially-sighted students. When the University is in session, the Library is open 86 hours per week.

Two branch libraries, the Physical Sciences Library and the Biological Sciences Library, are located in the Physical Sciences Building and in the Science Lecture Hall. The Physical Sciences Library contains approximately 40,000 volumes and includes 900 current periodical titles. An equal number of current journals is held in the Biological Sciences Library. Hours of service are the same as the General Library, and copying service is furnished in both branches. In addition, a library for the Museum of Systematic Biology is located in the Engineering Building.

The Medical Sciences Library in the College of Medicine complex contains a collection of over 88,000 volumes, including monographs and bound journal volumes, as well as 1,600 current periodicals. Among the audio-visual services it presents are microform reader/printers, video tape players, and slide projectors with tape players. Reference services ranging from ready reference to on-line information retrieval are provided by a professional reference staff, who also offer instruction in library use. The Library not only serves as a resource facility for the entire medical community in Orange County, but is open to the general campus.

The Medical Center Library is a branch of the Medical Sciences Library located at the University of California Irvine Medical Center. The collection totals 18,000 volumes with

600 current journal subscriptions. Reference services including on-line information retrieval are available. The Library serves primarily as the library for the Medical Center and is a part of campus library resources.

Modern methods for increasing the speed and efficiency of library service have been installed. The Library subscribes to a computer-based cataloging service provided by the Ohio College Library Center in Columbus, a system which enables the Library to make books available much more rapidly than before. Fifty or more data bases are available for searching through the Library computerized information retrieval systems. More information on this program can be found in leaflets which are kept for distribution at the public desks.

Interlibrary loan service is available on a national and international basis to faculty and graduate students, and undergraduates may use this service to borrow material from other University of California libraries. Bus service to UCLA is offered Monday through Saturday for students who need material not held in the UCI Library.

For a more comprehensive description of Library services and procedures, consult the materials which may be found in the lobby or at any public services desk.

Computing Facility

The Computing Facility provides interactive and batch computing services to students, faculty, and staff on three computers: a Xerox Sigma-7, a Digital Equipment Corporation DECsystem-10, and a DEC PDP-11. Computing at UCI is distinguished by the commitment to make computing an integral part of the academic programs at both the undergraduate and graduate levels, and by the commitment to extensive use of interactive computing. Approximately 40% of the students are involved with some form of instructional computing every year. The Facility can serve more than 120 interactive users simultaneously on its three systems.

A wide variety of programming languages and applications packages are available to users. Limited capabilities are available for remote computing at other campuses and laboratories of the University. The Facility provides orientation sessions for local systems. Instruction in programming and other aspects of computing is provided by the Department of Information and Computer Science, other academic units, and University Extension.

Information about campus computing services is available at the Computing Facility's Office of Production Services, 364 Computer Science Building.

School of Criticism and Theory

The School of Criticism and Theory is a summer program for graduate students and postdoctoral fellows operated by a nationally-chosen Board of Senior Fellows and supported with the assistance of the National Endowment for the Humanities. Founded in 1976, it offers every summer a six-week session of classes taught by the Senior Fellows and distinguished visitors. Twenty-four postdoctoral fellowships are offered for national competition and two fellowships are specifically for University of California faculty members. There are thirty-two enrollments available at a tuition of \$500, and these are open to both graduate students and faculty members from the United States or elsewhere. The University of California, Irvine Department of English and Comparative Literature offers some graduate fellowships to beginning graduate students who wish to specialize in literary theory with a degree either in English or in Comparative Literature.

The intention of the School is to provide an arena for discussion of the many contemporary developments in literary theory and in the relation of literary study to the humanities generally. Six formal courses in literary and humanistic theory and numerous colloquia are offered each summer. Inquiries about admission and the program should be addressed to School of Criticism and Theory, c/o Department of English and Comparative Literature, University of California, Irvine; Irvine, California 92717.

Center for Pathobiology

The Center for Pathobiology is an organized research unit of the University of California. It provides a focus within the School of Biological Sciences for research in several related areas of developmental biology and genetics. One of the major goals of the Center is to understand the mechanisms responsible for the generation of spatial patterns of differentiation during development, using mainly insects and amphibians as experimental material and drawing upon the techniques of cell biology, embryology, genetics, and endocrinology. Other activities of the Center are concerned with the genetic and endocrine mechanisms controlling insect and crustacean development. The work carried out in the Center is concerned with basic mechanisms of development, but has potential implications in such areas as the

control of growth and regeneration, cancer, and the causation of birth defects. The analysis of insect growth regulators may provide new methods to control agricultural pests and disease vectors.

The Irvine Arboretum

The Arboretum is a botanic garden developed and managed by the School of Biological Sciences. Among its goals is the establishment of a habitat planted with the flora characteristics of the southern grassland-coastal ecosystem. When completed, the campus flora plus the botanic garden will serve as important scientific and educational resources for research and teaching.

Museum of Systematic Biology

The Museum of Systematic Biology is a scientific resource charged with cataloguing and maintaining specimens of local plants and animals. Its holdings, totaling over 120,000 specimens, provide environmental scientists and students of ecology with information dealing with the occurrence, identification, and distribution of the species living in our immediate environment. In addition to its general holdings, the Museum is custodian for three outstanding special collections: the Sprague Conchological Collection, the Cassady-Lewis Herpetological Collection, and the Rudkin Lepidopteran Collection.

Institute of Transportation Studies

The Institute of Transportation Studies (ITS) was established to foster research, education, and training in the field of transportation. The Institute has been an Organized Research Unit within the University of California since 1947, with its main branch located on the Berkeley campus. The Irvine campus branch was established in 1974.

Emphasis at Irvine has been on the development of a strong interdisciplinary research capability. Completed and ongoing research projects have involved faculty and students from the Graduate School of Administration, the School of Social Sciences, the School of Engineering, the Program in Social Ecology, the College of Medicine, and the Department of Information and Computer Science. Research at Irvine is focused in the areas of transportation systems planning and evaluation, fiscal and administrative management of public transit systems, labor relations in the transit industry, and energy and environmental issues. Current projects include "Development of Performance Indicators for Transit," "Traffic Congestion, Stress, and Job Performance," "Labor Relations in Mass Transit," and "Simulation of Carbon Monoxide Concentrations in Urban Airsheds."

The Institute is currently charged with the administration of a grant from the California State Legislature to develop a Transit Management Program (TMP) for research and training in the management and operation of public transit systems. A portion of the funds is used to sponsor postdoctoral research fellowships.

A four-quarter Certificate Program in Transportation System Management is coordinated by ITS staff in cooperation with University Extension.

The Institute maintains a research collection of technical reports and journals in the field of urban transportation and has access to computerized information retrieval systems including the U.S. Department of Transportation's TRISNET system.

Public Policy Research Organization

The Public Policy Research Organization (PPRO) is a university-based research center that performs policy research with emphasis on public policy problems facing state and local governments. (Local governments include counties, municipalities, school districts, special districts, and regional agencies.)

Within this broad mission, PPRO pursues two major objectives: improvement in policy regarding use of modern information technologies (including computers and telecommunications) and management science techniques; and improvements in methods for evaluating public policies and programs.

As a campuswide Organized Research Unit, PPRO draws its principal research expertise from the full faculty and student resources of the Irvine campus. Of the 50 faculty and students currently working on research in PPRO, the majority are from the School of Social Sciences, the Department of Information and Computer Science, the Program in Social Ecology, and the Graduate School of Administration. Among PPRO researchers are experts in law, public administration, computer science, business administration, economics, public finance, political science, sociology, psychology, planning, and public policy. PPRO projects are multidisciplinary by nature.

PPRO's current projects include a study of research literature in the field of municipal information systems, assessment of evaluation research activities and capabilities in the State of California, a nationwide study of information systems and their impacts on American cities and counties, evaluation of the EIR (Environmental Impact Report) pro-

cess as a means of protecting environmental quality, a study of the relationship between economic change and health status in metropolitan areas, and a public service program for disseminating information to government officials and administrators.

Graduate assistantships will be available for some qualified UCI students who desire experience in policy research and analysis.

UCI Medical Center and Community Clinic of Orange County

The UCI Medical Center (UCIMC) is a fully accredited general and emergency care hospital located in the city of Orange. Formerly the Orange County Medical Center, the facility has been affiliated with the UCI College of Medicine since 1968. On July 1, 1976, the ownership and operation of the Medical Center were transferred from the County of Orange to the University, and the facility was renamed the University of California Irvine Medical Center.

College of Medicine faculty and resident physicians are the professional staff for medical services at the Center; a full complement of inpatient and outpatient services in virtually all medical specialties is offered. The Center serves as a principal facility for teaching and research programs for medical students, providing them with direct involvement in patient care.

UCI clinical facilities also include the Community Clinic of Orange County (CCOC), located in the city of Santa Ana. A comprehensive care clinic, CCOC is the home of the Department of Family Medicine residency program of the College of Medicine. Together, the Medical Center and the Community Clinic provide care for approximately 200,000 outpatients and more than 26,000 inpatients a year.

For further information about these University operated clinical facilities and other facilities associated with the UCI medical care-medical education system, see the College of Medicine portion of this Catalogue.

SUPPLEMENTARY EDUCATIONAL PROGRAMS

Education Abroad Program

The Education Abroad Program offers opportunities to undergraduate and graduate students of the University of California to study for credit in universities overseas, and

serves also as a source of information on all types of educational exchange experiences.

Study centers have been established in Brazil, Egypt, France, Germany, Ghana, Hong Kong, Israel, Italy, Japan, Mexico, Kenya (Nairobi), Norway, Russia, Spain, Sweden, the United Kingdom, and Ireland. Participants generally spend from nine to eleven months abroad, including a special orientation program, six or seven weeks of intensive language preparation, a full academic year in the university of their choice, and some vacation travel.

For information about eligibility, deadlines, financial aid, or for further material concerning particular centers abroad, consult Helen Stanley, Trailer 409, (714) 833-6343.

Summer Sessions

Two summer sessions will be held on the Irvine campus. Session I will run from June 19 to July 26, 1978. Session II will be from July 27 to September 1, 1978. Students may enroll in either session or both sessions. Those who enroll in both take an academic program equivalent to a regular quarter, thus accelerating their progress toward a degree.

A wide variety of courses from the regular sessions is planned, supplemented by experimental offerings available only during the summer. Admission is open to all university students, high school graduates, and to qualified applicants over eighteen years of age. Admission to Summer Session does not constitute admission to a regular session of the University; therefore, official transcripts of educational records are not required. Fees for Summer Session are the same for out-of-state students as for California students.

Information regarding Summer Session may be obtained from the Summer Session Office, 148K Administration Building, (714) 833-5493. Catalogues and application forms will be available in February.

University Extension

University Extension programs are designed to provide educational opportunity to adults for professional upgrading, personal growth through cultural programs, and more effective participation in civic affairs. In the broader social view, it is the assigned task of University Extension to provide the mechanism by which the resources of the University can be applied to the more rapid solution of statewide and urban problems.

A variety of methods are used to implement these aims:

classes, lecture series, discussion groups, correspondence courses, conferences, institutes, and short courses.

Extension programs in Orange County are offered both on the UCI campus and at other locations. For detailed information, write or telephone the UCI Extension Office, 102 Administration Building, (714) 833-5414.

Air Force ROTC

Through arrangements with the University of Southern California, two-, three-, and four-year Air Force Reserve Officers Training Corps (AFROTC) programs are available to all qualified UC Irvine students. Academic units earned in this program are counted as elective units toward fulfill-

ment of UCI graduation requirements. Successful completion of the AFROTC program leads to a commission as a Second Lieutenant in the Air Force Reserve. Two- and three-year scholarships are available to qualified students on a competitive basis. Four-year scholarships for incoming students must be applied for before December 15 in the year prior to entering college. All scholarship recipients receive full tuition (UC Educational and Registration Fees), required fees and books, and \$100 a month. All qualified cadets are provided 25 hours of flying training during their final year in the program. For additional information contact the Department of Aerospace Studies (AFROTC) at the University of Southern California, Los Angeles, California 90007, (213) 741-2670 or 2671.





Academic Information

UC IRVINE - 1977-1978

Academic Objectives

The University of California, Irvine strives to provide an atmosphere conducive to creative work at all levels, to explore the accumulated knowledge of mankind, and to develop new knowledge through basic and applied research. Along with these objectives, Irvine has a serious commitment to public service. The campus generates research expertise which may be applied to regional and national social issues, and seeks to provide humanistic understanding of the problems of society. The campus is committed to the development of high caliber academic programs and research efforts. Now in its second decade, UCI has acquired a national reputation for its creative organization and programs and for its record of excellence.

Through the establishment of Schools as the primary academic structure (see p. 10) UCI has given recognition both to the traditional academic disciplines and to the flexibility necessary to accommodate the broadest interdisciplinary programs. The intention is to avoid the intellectual isolation that can result from excessive concentration in a conventionally-defined discipline, and, at the same time, to assure that the student is able to concentrate effectively on a particular field of study. A number of traditionally separate academic disciplines have been given strong interrelationships at UCI, and faculty members within Schools may have multidisciplinary interests. Certain academic units offer degrees in general fields of study in addition to, or instead of, degrees in conventionally-recognized disciplines. Interdisciplinary work both within the Schools and across School lines is common, and courses are available for non-majors at all levels of undergraduate instruction.

An individual student's academic program will include specific course work and a major emphasis of some kind, al-

though a "major" at UCI often can be more comprehensive than is usually the case at the university level. Emphasis is placed on a coherent program stressing individual interests and needs, including exposure to a variety of educational experiences represented by disciplines and points of view beyond those of the major field. Students are expected to gain a sense of intellectual discipline, as well as depth and breadth of knowledge.

Also important to Irvine's overall academic concept is recognition that a university provides an environment which goes beyond the regular course work of formal courses. Much depends on a student's own initiative — on how fully a student takes advantage of opportunities that come through suggestions for further study, through informal communication with faculty and students, and through all the accidents of association to be found in academic life.

The UCI faculty believes that a student's collective university experience should furnish a particular set of insights which will become the basis for an intellectual identity and lifelong learning. The Irvine educational experience is intended to give students a foundation on which to continue developing their intellectual, esthetic, and moral capacities throughout their lives.

Degrees

Administration	M.S., Ph.D.
Anthropology	B.A.
Biological Sciences	B.S., M.A.T., M.S., Ph.D.
Chemistry	B.A., M.A., Ph.D.
Classical Civilization	B.A.
Classics	B.A., Ph.D.
Comparative Culture	B.A., M.A.T., Ph.D.
Comparative Literature	B.A., M.A., Ph.D.
Dance	B.A.
Drama	B.A.
Economics	B.A.
Education	Credential Programs Only
Engineering	B.S., M.S., Ph.D.
English	B.A., M.A., M.F.A., Ph.D.
Fine Arts	B.A., M.F.A.
French	B.A., M.A., Ph.D.
Geography	B.A.
German	B.A., M.A., Ph.D.
History	B.A., M.A., Ph.D.
History of Art	B.A.
Humanities	B.A.
Information and Computer Science	B.S., M.S., Ph.D.
Linguistics	B.A.
Mathematics	B.A., M.A., Ph.D.
Medicine	M.D.
Music	B.A.
Pharmacology and Toxicology	M.S., Ph.D.
Philosophy	B.A., M.A., Ph.D.
Physics	B.A., M.A., Ph.D.
Political Science	B.A., Ph.D.
Psychology	B.A., Ph.D.
Radiological Sciences	M.S., Ph.D.
Russian	B.A.
Social Ecology	B.A., M.A., Ph.D.
Social Science	B.A., Ph.D.
Sociology	B.A.
Spanish	B.A., M.A.T., M.A., Ph.D.
Studio Art	B.A.

In order to receive a degree, a student must file an Application for Graduation at the appropriate dean's office the first quarter of senior year.

Undergraduate Majors and Associated Areas of Concentration

Many undergraduate degree programs at Irvine offer the student options for concentrations *within* the major. Since these concentrations are not apparent from the list of degrees, the following expanded list has been compiled to provide a fuller indication of majors and associated areas of concentration available. For further information on any area, consult the Index.

*Administration	Economics
American Studies	*Education
See Comparative Culture	Engineering
Anthropology	Civil
Art	Electrical
History of Art	Mechanical
Studio Art	Environmental (with
Bilingualism and English	Civil or Mechanical
as a Second Language	only)
Biological Sciences	English
*Business Administration	Literature — principally
Chemistry	English and American
Classical Civilization	(See Literary Criticism)
Classics	Writing
Cognitive Linguistics	Environmental Analysis
Comparative Culture	Ethnic Studies
(Cross-Cultural and In-	See Comparative Culture
terdisciplinary)	Film Studies
Comparative Literature	Fine Arts (General
Computer Science	Interdisciplinary)
See Information and	French
Computer Science	Culture and Civilization
Creative Writing	Linguistics
Criminal Justice	Literature
Culture Studies	Geography
See Comparative Cul-	German
ture	Linguistics
Dance	Literature
*Developmental and Cell	Greek
Biology	History
Drama	Humanities (Inter-
*Ecology and Evolutionary	disciplinary)
Biology	

Information and Computer Science
 Italian
 Latin
 Linguistics (School of Humanities)
 In addition, special Linguistic emphasis is available in each of the following: Classical Languages; French; German; Russian; Spanish
 Linguistics (School of Social Sciences)
 Literary Criticism
 Literature
 Comparative English and American French
 German
 Russian
 Spanish
 Mathematics
 *Molecular Biology and Biochemistry
 Music
 Philosophy
 Physics

Political Science
 Portuguese
 *Psychobiology
 Psychology
 *Public Administration
 Quantitative Social Science
 Russian
 Civilization
 Linguistics
 Literature
 Social Behavior (Community Psychology and Human Development)
 Social Ecology
 Social Science
 Social Thought
 Sociology
 Spanish
 Bilingualism and English as a Second Language
 Culture
 Linguistics
 Literature
 Statistics
 *Teacher Education
 Television
 Writing

Honors at Graduation

Students may graduate with honors, either *summa cum laude*, *magna cum laude*, or *cum laude*. The criteria used by each school in weighing candidates for these honors are included in each school's section of the Catalogue.

Phi Beta Kappa

Phi Beta Kappa is a national honor society which recognizes outstanding scholastic achievement in the liberal arts and sciences. Upper-division students whose undergraduate records fulfill certain requirements are eligible for election to membership.

*No undergraduate major is offered, but studies in these areas may be integrated with the undergraduate program.

Areas of Graduate Study

UC Irvine offers graduate study leading to advanced degrees and credentials in a wide range of academic disciplines and professional areas. The following list includes not only those fields in which an advanced degree or credential preparation is offered, but also recognized areas of emphasis. For further information on any area, consult the Index.

Administration	Evolutionary Biology
Administrative Services	Fine Arts
Credential	French
Anthropology	Genetics
Bilingual/Cross-Cultural	German
Specialist Credential	History
Biochemistry	Information and Computer
Biological Sciences	Science
Biophysical Chemistry	Mathematics
Biophysics	Medicine
Business Administration	Microbiology
Cell Biology	Molecular Biology
Chemistry	Multiple-Subject Instruction
Classics	Credential
Cognitive Science	Music
Community Psychology	Pharmacology and Toxicology
Comparative Culture	Philosophy
Comparative Literature	Physics
Computer Science	Physiology
Creative Writing	Political Science
Criminal Justice	Politics, Society, and Social
Dance	Issues
Developmental Biology	Population Biology
Drama	Psychobiology
Early Childhood Education	Psychology
Specialist Credential	Public Administration
Ecology	Pupil Personnel Services
Education, Credential	Credential
Programs	Radiological Sciences
Educational Administration	Single-Subject Instruction
Electrical Engineering	Credential
Engineering	Social Ecology
English	Social Science
Environmental Engineering	Spanish
Environmental Planning	Studio Art

Requirements for a Bachelor's Degree

UNIVERSITY REQUIREMENTS

UC Requirements

1. English ("Subject A"). Every undergraduate must demonstrate upon entrance to the University an acceptable level of ability in English composition. This requirement may be met *before entrance* by:
 - a. Achieving a grade of 5, 4, or 3 in the College Entrance Examination Board (CEEB) Advanced Placement Examination in English; *or*
 - b. Achieving a score of 600 or better in the English Composition Achievement Test of the College Entrance Examination Board (CEEB). Students who score between 450 and 600 on this examination may be retested by the Subject A Office. Please call the Subject A Office for information. NOTE: UC Irvine does *not* normally administer the CEEB examinations for freshman applicants. Please contact the Office of Admissions for information; *or*
 - c. Completing satisfactorily the California State University and College English Equivalency Test; *or*
 - d. Entering the University with credentials from another college which show the completion of an acceptable one-quarter (four units) or one-semester (three units) course in English composition with a grade of C or better. NOTE: High school English courses will not satisfy this option.Those students not meeting the Subject A requirement prior to entrance *must attempt to satisfy the requirement during their first year of residence in the University*. There are four avenues by which such students may satisfy the requirement. One is by taking and passing the Subject A Diagnostic Examination that is given only during fall quarter Orientation Week before classes begin. A second is by taking and receiving a grade of "P" in the Writing Workshop attached to the Humanities Core Course. Third, students scoring from 550 to 600 on the CEEB English Composition Achievement Test may enroll in English 28A and can satisfy the Subject A requirement through achieving a grade of 2.0 (C) in that course – or such students may choose the possibility next

described. Fourth, students scoring below 550 on the CEEB English Composition Achievement Test – and who have followed neither of the first two routes described above – can satisfy the Subject A requirement through taking Writing 1A and receiving a grade of 2.0 (C) in that course.

2. American History and Institutions. This requirement may be met by one of the following:
 - a. Completion in high school of one year of United States history with grades of C or better, *or* one semester of United States history and one semester of United States government with grades of C or better.
 - b. Receiving a score of 5, 4, or 3 in the Advanced Placement Examination in United States History.
 - c. Receiving a score of 500 or higher in the CEEB Achievement Test in American history and social studies.
 - d. Presentation of a certificate of completion of the requirement at another California institution.
 - e. Completion at another institution of one year of college level United States history with grades of C or better, *or* one course in United States history and one in United States government with grades of C or better.
 - f. Completion at UCI of one four-unit course in colonial American history and one four-unit course in introduction to political science.
 - g. Passing an examination in these subjects. (Students should contact the Undergraduate Study Office, School of Humanities, for further information about the examination.)

UCI Requirements

3. Breadth requirement.* Rather than prescribing specific courses or areas, the faculty simply states that a given portion of a student's course work should be in areas outside the student's major. This requirement may be

*The breadth requirement does not apply to students majoring in the School of Engineering.

met by taking course work in three schools (Schools of Biological Sciences, Fine Arts, Humanities, Physical Sciences, or Social Sciences) or, upon petition approved by the student's academic dean, work in Comparative Culture, Information and Computer Science, and Social Ecology, in Engineering, or in undergraduate courses taught in the Graduate School of Administration, outside the school of the student's major, as follows:

A student must take 24 units in one school outside the major and 12 units in each of two other schools outside the major.

Normally a student takes six four-unit (standard or full) courses in one school outside the major and three four-unit (standard or full) courses in each of two other schools outside the major. Students transferring to UCI from schools on semester systems should see page 43.

4. Credit for 180 quarter units, earned by examination, by other evaluation, or course work. A course normally offers four quarter units of credit.
5. A grade average of at least C (2.0).
6. Candidates for the baccalaureate must attain at least a C (2.0) average in all of the courses required in the major program and at least a C (2.0) average in the upper-division courses required in the major program. Higher averages than this may be required only in honors programs. Students who fail to attain a C (2.0) average in courses required in the major program may, at the option of the major unit, be denied the privilege of pursuing a major program in that unit. (In this context, "the courses required in the major program" are defined as the courses required for the major and offered by the program of the student's major.)
7. Credit for the last three quarters of work immediately preceding graduation earned in residence on the Irvine campus (i.e., a minimum of one year full-time attendance at UCI). Exceptions to this rule may be allowed, with prior departmental approval, to students enrolled in the Education Abroad Program.
8. Students enrolled at UCI from their freshman year may elect to meet as graduation requirements those in force

at the time of entrance or those subsequently passed after entrance. Students transferring from other collegiate institutions may elect to meet as graduation requirements those in effect at the time of entering the other collegiate institution, those in effect at the time of transfer to UCI, or those subsequently passed. A student who seeks readmission to UCI more than three consecutive quarters after withdrawing from student status must determine graduation requirements from the time of readmission.

Proficiency in English and Foreign Languages

Beyond the general English requirement ("Subject A," described on p. 20), there is no general UCI requirement in English composition.

Although there are no general requirements in foreign languages for students at UCI, some departments do have foreign language requirements. Students considering graduate education should bear in mind that the ability to read one or more foreign languages may be a requirement for graduate school.

SCHOOL AND DEPARTMENTAL REQUIREMENTS

In addition to the University requirements listed above, each undergraduate student must satisfy the degree requirements for the major selected. Some schools do not have school requirements; in these cases, a student majoring in one of these schools simply has to fulfill the University and the departmental requirements. The University, school, and departmental requirements may overlap; courses taken to fulfill a school or departmental requirement (e.g., the physics course requirement in the School of Biological Sciences) may also help fulfill the UCI breadth requirement. Information on specific school and departmental degree requirements, as well as courses offered, can be found in the Schools and Departments section of this Catalogue.

The student should have determined an area of concentration no later than the beginning of the junior year, having made certain that the background and the preparation prerequisite to junior and senior work in the major have been accomplished. Transfer students should see the section on Planning for Transfer to UCI, page 42.



Planning a Program

CHOOSING AN UNDERGRADUATE MAJOR

The student is expected to choose a major (a field of concentration) by the beginning of the junior year and in some areas is actually discouraged from making a choice before that time. Majors are usually along departmental lines, except in those schools and programs that are not departmentalized. The requirements for most majors allow students to take a considerable number of electives from other programs. A qualified student may graduate with a double major by fulfilling simultaneously the requirements of any two schools. The various majors and associated requirements are described in detail in the Schools and Departments portion of this Catalogue.

In preparation for choosing a major, students should consult their advisors about the possibilities which may be open to them. Even though the advisor may not be thoroughly familiar with all fields, the advisor can suggest ways to investigate other areas of study. Students should feel free to go to any department and speak to an academic advisor in order to learn more about that field, its programs of study, its requirements for admission and graduation, and possible enrollment limitations.

While some students are aware that they might like to major in one of several subjects, other students are only aware of those fields in which they do not wish to major. The task of choosing a major is therefore often one of refining these earlier impressions in the light of experience in courses, discussions with faculty and with other students, and the opening of new opportunities and possibilities. Students with absolutely no idea of the field in which they would like to major will have time to take courses in various fields and determine their specific interests.

It should be kept in mind that some major programs require specific preliminary study; that courses required for graduation or for a major which the student may later wish to elect must be considered; and that one must be cautious about excessive early concentration that may prevent moving to a major in a different field. A student should not overlook any possible opportunities. The faculty advisor can be helpful in formulating an overall lower-division program which will keep the maximum number of possible majors open.

General Studies Advising Program: An Opportunity for Scholarly Exploration

The University of California, Irvine recognizes that not all students are prepared to make a choice of university major during their senior year in high school. Other students may have one or more majors in mind, but may wish to engage in a period of scholarly exploration before committing themselves to a specific major. To enable students to do this, UCI has organized the General Studies Advising Program for freshmen and sophomores. This Program provides a central advising office under the jurisdiction of the Office of Special Programs, and a team of carefully selected faculty, staff, and peer advisors.

Any freshman or sophomore applicant who designates "undeclared" as their choice of major on the Undergraduate Application for Admission automatically will be placed in the Program and will be interviewed prior to enrollment by a staff counselor who will assign the student to an appropriate faculty advisor. This will be done during the summer, or if this is not possible, during Orientation Week in the fall. The student will meet with the advisor to plan a tentative course of study for the first year and select specific courses for the current quarter. The faculty advisor and the staff counselor will assist the student in selecting courses which will best meet individual needs.

Although students may declare a major at any time, it is expected that a student normally will remain in the Program during the entire freshman year in order to receive maximum benefit from the careful advising and educational support services. All students must select a major no later than the start of their junior year.

For further information on the General Studies Advising Program contact the Office of Special Programs, 256 Administration Building, (714) 833-6987.

ACADEMIC ADVISING

At the time of admission every undergraduate student at UCI is assigned for purposes of academic advising to the school or program that corresponds to the student's stated area of academic concentration (major). Students who have not yet selected an area of academic concentration at the

time of admission are automatically in the General Studies Advising Program and are assigned to an advisor specifically prepared to help the undecided student. The Program is under the jurisdiction of the Office of Special Programs. This assignment will continue until the student reaches a decision concerning a major, at which time the student will submit a petition for a change of major and be transferred to the appropriate school or program. Jurisdiction over all questions of academic regulations and academic standing rests with the dean or director of the school or program to which a student is currently assigned for purposes of academic advising. Thus, all requests to add or drop courses, petitions seeking waiver or change of graduation or other requirements, and petitions to change area of academic concentration must be processed through the office of that dean or director.

Each academic unit is responsible for maintaining a system which provides academic advising by faculty members. These systems differ among the several academic units. In some, all of the faculty serve as advisors; in others, only certain members of the faculty are designated as advisors. In each instance, however, every student will have a faculty advisor. Responsibility for informing students of the identity of their advisors rests with the dean or director of the appropriate academic unit. This is normally done by letter, but if at any time students are uncertain of the identity of their faculty advisors they may obtain that information from the office of the appropriate dean or director. In some areas students may petition to change advisors. A change in area of concentration often involves a change in advisor. This will always be the case when the change of concentration is to a different school or program. The new school or program will assign a new advisor and inform the student.

In some schools and programs consultation between students and their faculty advisors is mandatory. Students are responsible for knowing the governing regulations of the school or program to which they are assigned for academic advising purposes. Irrespective of whether or not consultation between student and advisor is required, *the student is responsible for initiating and maintaining periodic contact with the assigned faculty advisor.* An appropriate time for the initial contact is during the week prior to the beginning of the student's first classes at UCI, or earlier at the time of registration if this is possible. Thereafter, consultation between student and advisor at the time of registration for each subsequent quarter is desirable. The actual frequency of these meetings will be determined by the desires of the

student, the advisor, and the governing regulations. It is the obligation of the faculty advisor to help the student plan an appropriate program of study and interpret the academic regulations of the campus, *but the student is solely responsible for meeting the academic regulations and remaining in good academic standing.*

In addition to faculty members, each unit provides staff who assist students with major selection, program planning, and petitions. Also, peer academic advisors, trained upper-division and graduate student academic advisors, are available to help students plan their programs, select or change majors, and arrange for tutoring as necessary. Besides furnishing counsel on such matters, these advisors dispense general campus information and refer students to the appropriate faculty and staff personnel for assistance with specific problems.

A listing of key advising personnel is provided for reference and convenience. The names of other personnel performing advising duties may be obtained directly from the academic units.

Advising Personnel

Biological Sciences

Howard A. Schneiderman, Dean	329 SH	833-5314
Daniel L. Wulff, Associate Dean and Chief Academic Advisor	329 SH	833-5314
Cindy Eddleman, Counselor	844 EGR	833-5318
Sue Lutz, Counselor	844 EGR	833-5318
Betty Preciado Doty, Counselor	844 EGR	833-5318

Comparative Culture

Joseph G. Jorgensen, Director	585 SST	833-7136
Chief Academic Advisor	579 SST	833-7135
Charlotte Ferree, Counselor	579 SST	833-7135

Engineering

J.H. Mulligan, Jr., Dean	305 EGR	833-6002
Allen R. Stubberud, Associate Dean and Chief Academic Advisor	325 EGR	833-6737
Lupe Green, Counselor	325 EGR	833-6749

Fine Arts

Clayton Garrison, Dean	249 FA	833-6611
David McDonald, Chief Academic Advisor	249 FA	833-6611
Peggy Wood, Counselor	247 FA	833-6647

General Studies Advising

Office of Special Programs	256 Admin.	833-6987
Diana Sherwood, Counselor	256 Admin.	833-6987

Graduate School of Administration

Lyman W. Porter, Dean	315 SST	833-5335
Raymond E. Oliver, Assistant Dean and Chief Academic Advisor	365 SST	833-6873
Susan Sills, Counselor	311 SST	833-6437

Humanities

William J. Lillyman, Dean	340 HH	833-5131
Guy Sircello, Associate Dean and Chief Academic Advisor	340 HH	833-6453
Cathy Smith, Counselor	338 HH	833-5132

Information and Computer Science

Thomas A. Standish, Chairman	444 CS	833-5233
Kim Gostelow, Chief Academic Advisor	458 CS	833-5517
Rose Allen, Counselor	438 CS	833-5156

Medicine

Stephanie H. Remo, Assistant Director of Admissions and Records	206 MSR II	833-5388
Richard Baiz, Assistant Dean	206 MSR II	833-6139

Physical Education

Linda B. Dempsay, Acting Chairman	1325 CH	833-6979
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Physical Sciences

Everly B. Fleischer, Dean	220 PS	833-6506
Stephen Scheinberg, Associate Dean and Chief Academic Advisor	220 PS	833-6507
Clare Wilkerson, Counselor	220 PS	833-6507
Tina Arth, Counselor	220 PS	833-6507

Social Ecology

Ellen Greenberger, Director	468 CS	833-6094
Uwe Reischl, Associate Director for Undergraduate Studies and Chief Academic Advisor	544 EGR	833-6861
Barbara Finch, Counselor	544 EGR	833-6861
Virginia Soth, Field Study Coordinator	544 EGR	833-6861

Social Sciences

Christian Werner, Dean	607 SST	833-6801
Myron Braunstein, Associate Dean and Chief Academic Advisor	639 SST	833-7027
Carol Nance, Counselor	627 SST	833-6803
Marianne Schnaubelt, Counselor	627 SST	833-6803

Teacher Education

Kenneth P. Bailey, Director	423 SST	833-5117
Jack McCullough, Assistant Director and Chief Academic Advisor	411 SST	833-6673
Ada Nix, Credentials Counselor	419 SST	833-5119
Frances Craig Kenney, Teacher Intern Program	433 SST	833-6423

PREPARATION FOR GRADUATE OR PROFESSIONAL STUDY

Students anticipating graduate or professional study in a certain field should exercise special care in constructing their undergraduate programs, and they should make their career goals known to their advisors.

Such choices naturally do not have to be made during the first two years, and may or may not be made during the second two, but early investigation of the possibilities of graduate or professional study will often be helpful to students who have an idea of the direction in which they would like to go.

Students should supplement their undergraduate programs by anticipating foreign language requirements at major graduate schools and by intensive work in areas outside the school or program of their major that are of special relevance to their intended graduate work.



Graduate Division

UC IRVINE - 1977-1978

Graduate Division

Alexei A. Maradudin Dean

Graduate study is an integral part of academic life at the University of California, Irvine. Programs leading to doctoral or master's degrees, or educational credentials, are offered in over 30 academic and professional areas. Although few years have passed since they were initiated, several graduate programs have already achieved national or international recognition for excellence in teaching, scholarship, and research. We believe there is a special atmosphere at UCI that springs from the challenge and excitement of participating in the development of new programs, as well as in the creation and assimilation of new knowledge. With the exception of programs conducted by the College of Medicine for the training of medical professionals, the general administration of graduate education is by the Dean of the Graduate Division in accordance with academic policies established by the Academic Senate and by the Graduate Council, a standing committee of the Irvine Division of the Senate. There is no separate graduate faculty at UCI; all graduate work is supervised by academic units and faculties which have concurrent responsibility for undergraduate studies. Additional information about graduate programs, admission requirements, and student services is available in the annual announcement, *Graduate Study*.

Through our Graduate Affirmative Action Program, positive steps are being taken to increase the representation of ethnic minorities, disadvantaged persons, and women in the graduate academic and professional programs of the University. In addition to offering special assistance during the admission process, we strive to ensure that persons from the target groups will have a reasonable chance to attain their

academic objectives. UCI does not discriminate against any applicant for admission, fellowships, or other student assistance on the basis of sex, ethnic origin, age, physical handicap, religion, or marital status.

ADMISSION TO GRADUATE STANDING

Applicants for admission to the Graduate Division at UCI must concurrently apply for acceptance into a specific graduate program to work toward an advanced degree or California educational credential. A general requirement for admission is that the applicant hold the degree of Bachelor of Arts, Letters, Philosophy, or Science (or an acceptable equivalent) from a recognized academic institution. A grade average of at least B (3.0 on a 4.0 scale) or better is normally required. Applicants for programs leading to M.A., M.S., or Ph.D. degrees must submit scores from the Graduate Record Examination Aptitude Test; the Graduate Management Admission Test (GMAT) is preferred by the Graduate School of Administration. Most graduate programs have additional admission requirements.

Each applicant's file is evaluated by both the Dean of the Graduate Division and the specific graduate program on the basis of such factors as academic subject preparation, scholarship, letters of recommendation, Graduate Record Examination scores, and examples of previous work. A critical question is whether the applicant's academic objectives can reasonably be satisfied by the graduate programs on this campus. The University of California does not have the capacity to accommodate all applicants who meet the minimum admission requirements.

How to Apply

Application forms and the annual *Graduate Study* announcement giving application deadlines for each program are available from the Graduate Division, University of California, Irvine; Irvine, California 92717. For fall quarter admission, application by February 1 is strongly encouraged even though applications are accepted past that date for many programs. Some academic units will accept applications for winter or spring quarter admission, for which the deadlines are October 15 and January 15, respectively. Two complete sets of official records covering all post-secondary academic work attempted, regardless of length of attendance, are required. These must include official evidence of degrees conferred from all institutions of college level. To be official, records must bear the Registrar's signature and the seal of the issuing institution, and should be sent directly from the Registrar to the Graduate Division. University of California transcripts must be requested by the applicant, including those who are UCI undergraduates. A summary of credit transferred and recorded on the transcript issued by the institution granting the degree will not suffice, except in the case of graduates of the University of California. In the absence of official records and official evidence of graduation or degree, final admission cannot be granted nor registration permitted. One set of transcripts and all other credentials are retained by the Graduate Division, and they may not be withdrawn and used by students for any purpose. The second set is forwarded to the appropriate academic unit, retained there, and may be used by the student in conferring with faculty advisors.

The application must be accompanied by a \$20 Application Fee in the form of a check, draft, or money order for the exact amount made payable to Regents-UC. In order to process applications in time for the scheduled registration days, it is necessary that complete and official transcripts be received before the published deadlines. Where students have work in progress at the deadline dates, final transcripts covering such work must be received before final registration can be permitted.

Admission of Foreign Students

Foreign applicants are subject to the standard admission requirements and must provide satisfactory evidence of financial support in order to obtain necessary visa documents. As it normally takes much longer to obtain credentials and process foreign applications, foreign students are urged to apply at least six months prior to the deadline

dates. Every foreign applicant, except those from countries where English is the primary language, must take the TOEFL examination (Test of English as a Foreign Language).

LIMITED STATUS

Under certain conditions, students holding a bachelor's degree are admitted to Limited Status in order to pursue specifically approved educational objectives. Although Limited Status does not represent graduate standing, admission is by the Graduate Division upon the recommendation of an academic unit which has agreed to oversee the student's program. Such students may enroll in graduate courses with the permission of the instructor. Credit for courses completed while in Limited Status will not be counted toward a graduate degree. While in Limited Status, students may take courses to improve their preparation for a graduate program, but grades assigned will not be used to improve overall grade point averages for the purpose of meeting minimum graduate admission requirements.

ACADEMIC ADVISING

A member of the faculty in each graduate program is designated as Graduate Advisor or Director of Graduate Studies with general responsibilities for graduate student advising. This person approves study lists and academic petitions and advises students and other members of the faculty about program requirements and the academic policies of the Graduate Division. The Graduate Advisor ordinarily plays an important role in the selection of students for assistantship and fellowship appointments, and reviews the academic progress of students in that program.

Most graduate students will also have an individual faculty advisor or advising committee, especially after the first year of advanced study. When a student is advanced to candidacy for the Ph.D., the doctoral committee becomes the primary source of academic guidance, but the academic petitions of students must still be approved by the Graduate Advisor.

ACADEMIC POLICIES

The academic policies described in this section apply to students enrolled in the Graduate Division. Other regulations and procedures of importance to graduate students are covered on pages 44-45 and 53-61, and in the description of each graduate program.

Scholastic Requirements

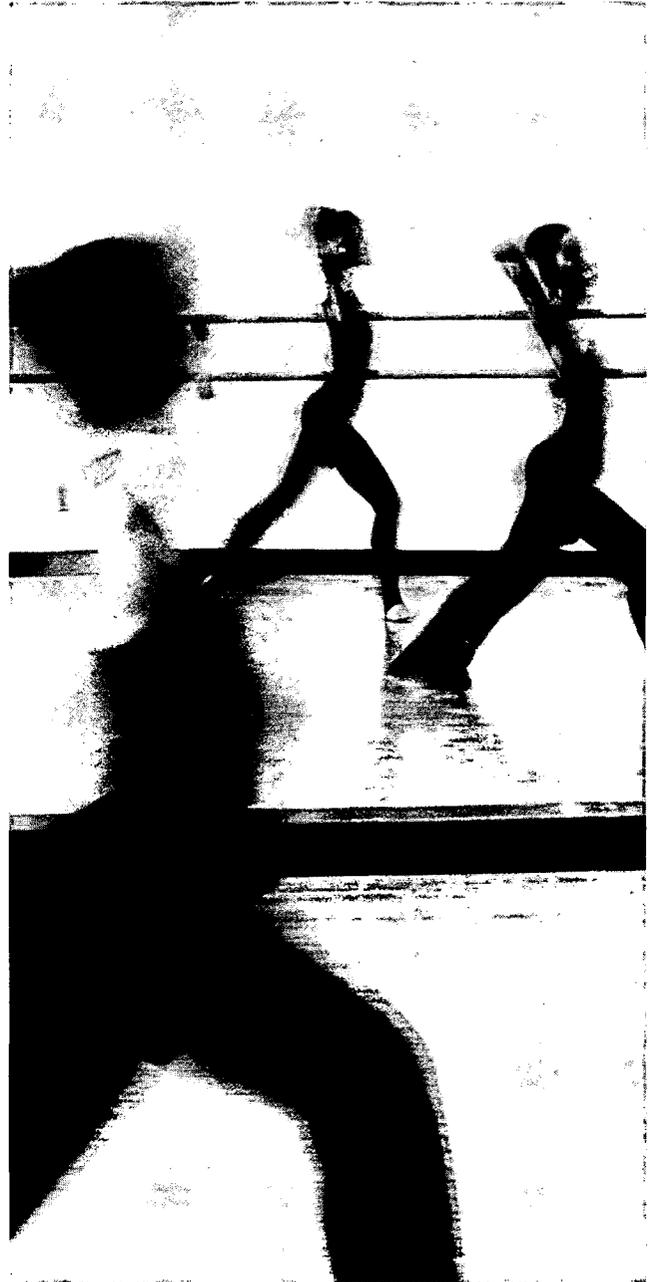
A graduate student is expected to make satisfactory progress toward an approved academic objective, as defined by the faculty of the program in accordance with policies of the Graduate Council, and to maintain a satisfactory grade point average for all work undertaken while enrolled in the Graduate Division. Satisfactory progress is determined on the basis of both the recent academic record and overall performance. A Graduate Division student normally is expected to satisfactorily complete at least eight units of academic credit in each regular academic session (unless on an approved leave of absence), and satisfy all requirements of the academic program according to an approved schedule. A grade point average below the B level (3.0 on a 4.0 scale) is not satisfactory, and a student whose GPA is below that level is not eligible for any academic appointment, such as Reader, Research Assistant, or Teaching Assistant, and may not hold a fellowship or other award which is based upon academic merit. After reviewing the recommendation of the student's academic unit, the Dean of the Graduate Division may disqualify a student who fails to make satisfactory progress, or whose overall grade point average is below 3.0.

Continuous Registration

A candidate for a higher degree is required to register for each regular academic session (fall, winter, and spring quarters) until all degree requirements are completed, including the thesis or dissertation and final examination. Unless granted an official leave of absence, a graduate student who does not complete registration for any quarter (except Summer Session) will lose graduate standing and must successfully apply for readmission in order to resume a graduate program of study. A student who wishes to withdraw after paying registration fees for the quarter must obtain formal approval. Otherwise, nonpassing grades will be assigned for all courses in which the student has been enrolled. See page 61.

Academic Residence

A graduate student is considered to be in residence during an academic quarter if at least four units of academic credit are earned in regular upper-division or graduate courses. Credit for one academic quarter of residence may be earned by completing at least two units of credit in approved courses in each of two summer sessions. In the case of Ph.D. students, these must be consecutive sessions. Full-time study is defined as the completion of at least 12 units



of academic credit per quarter, or eight units in combination with service as a Research or Teaching Assistant.

Part-Time Study

With the approval of the academic unit and the Dean of the Graduate Division, a graduate student may enroll for fewer units of academic credit than required for full-time residence. However, payment of all regular student fees is required regardless of the number of units of credit earned. Students not in full-time residence are ineligible for certain fellowship and assistantship awards. Satisfactory progress toward completion of the academic program is required of all students.

Course Load Limitations

Academic regulations provide that a graduate student may not ordinarily receive credit for more than 12 units per quarter in graduate courses, or 16 units in upper-division courses, or a proportionate number in combination. Course loads in excess of 16 units (exclusive of units in physical education) must be approved by both the student's Graduate Advisor and the Dean of the Graduate Division.

Leave of Absence

A leave of absence of no more than one year's duration may be granted by the Dean of the Graduate Division upon the approval of the student's academic unit, subject to the following guidelines:

1. The student must have satisfactorily completed at least one quarter in residence and be in good academic standing. The leave must be consonant with the student's academic objectives.
2. While on leave, the student cannot receive assistance from a University fellowship, research grant, or financial aid program, and may not hold an academic appointment as a student assistant. A student may not take qualifying examinations for advancement to candidacy or receive academic credit for work done during the leave period (except by transfer of credit from another institution).
3. A student failing to complete registration for the regular academic session following the expiration of leave will lose graduate standing, except that the student may take final examinations (oral or comprehensive) and file a thesis or dissertation by paying the prescribed Filing Fee in lieu of registration. Leave ordinarily is approved in cases of (a) serious illness or other temporary disability;

(b) enrollment at another educational institution; or (c) temporary interruption of the student's academic program for other appropriate reasons.

Readmission

A student who previously withdrew from the University, or who failed to meet the continuous registration requirement, may request readmission to the Graduate Division by submitting an Application for Readmission with a \$20 fee. Readmission may be granted by the Dean of the Graduate Division, when recommended by the academic unit. If readmitted, a student's previous academic work will be applied toward the requirements for an advanced degree only with the approval of the Graduate Advisor and the Dean of the Graduate Division. As a condition of readmission, a student may be required to satisfy certain requirements a second time, including formal advancement to candidacy. A readmitted student will be expected to complete at least one additional academic quarter in residence before a degree will be conferred.

Transfers of Academic Credit

At least one-half of the course requirement for a master's degree must be completed while in residence in the UCI Graduate Division. Upon matriculation, up to one-fifth of the minimum course requirement for a master's degree may be allowed for comparable graduate work previously completed at another institution of recognized standing, including University Extension. Up to one-half the courses required for the master's degree may be accepted from another Graduate Division of the University of California. The acceptance of academic credit earned in another program must be recommended by the academic unit to which the student has been admitted, and approved by the Dean of the Graduate Division. A Graduate Division student who matriculates in the fall quarter will receive full credit for courses taken in the preceding UCI Summer Session(s), provided that the formal date of admission precedes Summer Session enrollment. Continuing graduate students will receive credit for courses taken in an intervening Summer Session. A student in a master's degree program may receive credit for work completed at another institution, or through University Extension, while on leave of absence only with the prior approval of the Graduate Advisor and the Dean of the Graduate Division.

INTERCAMPUS EXCHANGE PROGRAM

A graduate student in good standing who wishes to take

advantage of educational opportunities available only at another campus of the University of California may do so through the Intercampus Exchange Program. Ordinarily, an exchange student will have demonstrated a high level of scholarship during at least one year of graduate study at the home campus and have well-defined academic objectives. Approval of the faculty advisor, the host department(s), and the Deans of the respective Graduate Divisions is required. Direct arrangements between faculty members on the two campuses are encouraged so as to ensure that the courses, seminars, or facilities will be available to meet the student's needs. Students may take courses on more than one campus of the University in the same academic session.

The exchange student registers and pays fees on the home campus, and then enrolls at the host campus, following the procedures of that Registrar's office. A report of academic work completed will be transferred to the student's academic record on the home campus. Although eligible for all normal student services, the exchange student is a visitor, not formally admitted to graduate study at the host campus. Application forms for the Intercampus Exchange Program may be obtained from the Graduate Division office of the student's home campus, and should be filed with that office at least four weeks before the beginning of the quarter.

GRADUATE DEGREES

Master's Degrees

The master's degree is conferred at the end of the regular academic session in which all requirements have been completed and final approval has been given by the Graduate Council. An application for advancement to candidacy for the master's degree, initiated by the student, must be submitted to the Dean of the Graduate Division before the opening of the quarter in which the degree is to be awarded. Although the candidacy application lists completed requirements and indicates those which must be satisfied, this information is advisory only. Exceptions to published requirements are granted only upon formal petition.

The Master of Arts (M.A.) or Master of Science (M.S.) degree is normally attained by one of two routes: Plan I, a thesis; or Plan II, a comprehensive examination. Both require a minimum of one year in residence, satisfactory completion of prescribed course work, and an appropriate demonstration of achievement. Plan I includes a minimum of seven courses (28 units), at least five (20 units) of which

must be at the graduate level, a thesis, and a general examination. Plan II requires at least nine courses (36 units), including six (24 units) or more at the graduate level, and a comprehensive examination covering a broad range of subject matter in the discipline. Only approved 200 series courses completed while in residence at the University satisfy the minimum graduate course requirement. Some programs will have course requirements exceeding the minimums cited above, and may have additional or alternative degree requirements. Please refer to the description of the specific program for more information.

Master of Fine Arts (M.F.A.) degrees are awarded by the School of Fine Arts (M.F.A. in Fine Arts) and by the Program in Writing (M.F.A. in English) upon successful completion of the equivalent of two years of full-time study with an emphasis upon creative expression and professional development. Special thesis or comprehensive examination requirements are established for these programs.

Master of Arts in Teaching (M.A.T.) degrees are awarded upon successful completion of programs designed for the professional development of secondary school teachers and college instructors. A minimum of one year in residence is required, usually including Summer Session course work. A thesis project or other comparable evidence of professional attainment is part of each M.A.T. program.

The Doctor of Philosophy

A Doctor of Philosophy (Ph.D.) degree is awarded on the basis of evidence that the recipient possesses knowledge of a broad field of learning and expert mastery of a particular sector of it. The research dissertation is expected to demonstrate critical judgment, intellectual synthesis, and imaginative creativity. The Doctor of Medicine (M.D.) degree, marking professional attainment, is awarded by the College of Medicine upon successful completion of the program in Medicine.

The candidate for the Ph.D. is expected to be in full-time residence for at least six regular academic quarters. Four to six years of full-time academic work beyond the bachelor's degree is typically required to complete the degree. At the end of the first year or so of full-time study, many programs administer a preliminary examination on the student's mastery of fundamental knowledge in the discipline. Upon successfully demonstrating a high level of scholarship on this examination, the student will continue to a series of qualifying examinations which lead to formal advancement to candidacy for the Ph.D. Following advancement to can-



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didacy for the Ph.D., a dissertation committee appointed by the Dean of the Graduate Division (on behalf of the Graduate Council) supervises the student's program, approves the dissertation, and conducts the final oral examination. The member of the faculty under whose guidance the student does the dissertation serves as chair of the dissertation committee. Ph.D. degrees are conferred as of the last day of the regular academic quarter in which final approval is given by the Graduate Council.

Graduate students ordinarily attain candidacy status for the Ph.D. degree when all preparatory work has been completed, qualifying examinations have been passed, and when they are ready for the dissertation phase. Students are recommended for advancement to candidacy by unanimous vote of the candidacy committee appointed by the Dean of the Graduate Division on behalf of the Graduate Council. The proposed candidacy committee must be submitted to the Graduate Division (on the Ph.D. Form I) at least two weeks before the final qualifying examination is to be given, so that the formal appointment can be made before the examination date. The Report on Qualifying Examination for the Degree of Doctor of Philosophy (Form II) must be signed by the committee at the time the candidacy examination is concluded and submitted to the Dean of the Graduate Division. Following a favorable vote of the committee, the student will be advanced to candidacy upon payment of the standard \$25 Candidacy Fee.

Filing of Dissertation or Thesis

After a dissertation or thesis has been approved by the faculty committee appointed for that purpose, the final requirement is that a copy of the dissertation (two copies of a master's thesis) must be filed with the University Library. The final copy must meet the University's requirements for style, format, and appearance before the degree can be conferred. Dissertations filed later than 30 days before the end of an academic quarter ordinarily cannot be reviewed and accepted in time to confer the degree during that quarter.

If all requirements for a degree have been finished prior to the start of the quarter, except for the submission of the final version of the dissertation or thesis, or the completion of a final oral or comprehensive examination, a student may be eligible to pay a Filing Fee of \$50 in lieu of registration. The student who does so may not make use of any University resource or receive any student service for which official residency is a requirement. Unless the student is on a formal leave of absence, the deadline for payment of the Filing Fee without an additional late service fee is the same as that for the payment of other registration fees. If the dissertation or thesis is not accepted during the quarter in which the Filing Fee is paid, the student must subsequently register or (in exceptional cases) pay a second Filing Fee.

FINANCIAL ASSISTANCE FOR GRADUATE STUDENTS

The University offers many types of financial assistance to graduate students. These include fellowships, teaching and research assistantships, grants-in-aid, student loans, work-study, and tuition fellowships for nonresident students. Student assistantships and University fellowships are awarded on the basis of recommendations initiated by the student's academic unit, and require satisfactory scholarship and full-time residence. Students applying for admission should indicate at the same time their desire to be considered for these awards. Continuing students should contact the Graduate Advisor for their program. Most awards are made in April or May of the preceding academic year. The Graduate Division provides information and assistance to students who wish to apply for fellowships from federal agencies, foundations, and other non-University sources. Grants for doctoral research from the Chancellor's Patent Fund are also administered by the Graduate Division. The Financial Aid Office makes awards which are based strictly upon financial need, including grants, loans, and work-study awards.



Undergraduate Admissions

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Undergraduate Admissions

The Office of Admissions welcomes inquiries on any aspect of becoming eligible for the University of California and on planning for transfer. Admissions counselors are available in 245 Administration Building, and inquiries may be addressed to the Office of Admissions, University of California, Irvine; Irvine, California 92717.

The University's undergraduate admission requirements, which are the same on all campuses, are based on two principles. The best predictor of success in the University is high scholarship in previous work, and the study of certain subjects in high school gives a student good preparation for University work.

The following information on admission to UCI is organized as follows: Categories of Application; Admission to Freshman Standing; Admission in Advanced Standing; Admission of International (Foreign) Students; Application Procedures; Additional Preparation for University Work; Planning for Transfer to UCI; and Additional Policies Relating to Admissions, including the determination of legal residence.

CATEGORIES OF APPLICATION

An **undergraduate** applicant is a student who wishes to complete a program of studies leading to a Bachelor of Arts or Bachelor of Science degree.

A **freshman** applicant is a student who has graduated from high school or has earned a Certificate of Proficiency (see p. 37) but has not enrolled since then in a regular session of any collegiate-level institution. Summer sessions immediately following graduation are excluded.

An **advanced standing** applicant is a high school graduate

who has been a registered student in a regular or extension session of a college or university other than a summer session immediately following high school graduation.

An **intercampus transfer** applicant is an undergraduate student who is currently or was previously registered in a regular session at another campus of the University of California and has not been registered in another collegiate institution. See page 61.

An applicant for **readmission** is a student who was formerly registered and enrolled on the Irvine campus and who has interrupted the completion of consecutive quarters of enrollment. See page 61.

A **second baccalaureate** applicant is a college graduate who because of a change of objective wishes to obtain a second bachelor's degree in a field different from that of the first degree.

An **international** applicant is a student who holds or expects to hold a student, exchange, visitor, or diplomatic visa and who wishes to attend school in the United States.

An **Early Admission Experimental Program (EAXP)** applicant is an accelerated high school student who wishes to register and enroll on a reduced fee basis in UC Irvine courses concurrently with high school courses.

ADMISSION TO FRESHMAN STANDING

The University defines a "freshman applicant" as a student who has graduated from high school or earned a Certificate of Proficiency and who has not enrolled in a regular session of any collegiate-level institution. Summer sessions are excluded in the determination.

Advanced standing credit will be granted for an acceptable course from an accredited college or university taken while still in high school if completed after the tenth grade and if reported on a valid transcript issued by the college or community college which conducted the course.

Freshman applicants who have not yet decided on a major should refer to page 23 for information on the General Studies Advising Program, a Program designed for undeclared majors.

Requirements for Non-California Residents

The freshman applicant who does not claim California residency must (1) graduate from a regionally accredited high school; (2) complete satisfactorily the "a through f" sequence of subject requirements listed below under requirements for California residents; (3) earn a grade point average of at least 3.4 (B-plus) on the courses used to meet the subject requirements; (4) submit five test scores from the College Entrance Examination Board: Scholastic Aptitude Test — Verbal and Mathematics, and three Achievement Tests: English Composition; Social Science or Foreign Language; Science or Mathematics.

Requirements for California Residents

To be eligible for admission to the University as a freshman you must meet the Subject Requirement, the Scholarship Requirement, and the Examination Requirement, which are described below.

Subject ("a through f") Requirement

You must complete certain high school subjects with at least a grade of C in each semester of each course. If you are a graduate of a California high school, or hold a valid Certificate of Proficiency, these courses must appear on a list that your high school principal has certified meet the course descriptions below and has placed on file with the Director of Admissions. If you are a graduate of an out-of-state high school, the Office of Admissions will determine if your courses are equivalent.

- a. History, one year: One year of United States history, or one-half year of United States history and one-half year of civics or American government.
- b. English, three years: English composition and literature, university preparatory in nature. All English courses certified to meet this requirement must have substantial, recurrent practice in writing expository

prose compositions of some length. *Courses in drama, journalism, and speech are no longer to be acceptable for admission purposes if completed after June 1977 unless they also meet the requirements noted above.*

- c. Mathematics, two years: Algebra, geometry, trigonometry, calculus, elementary functions, and mathematical analysis. Nonacademic courses such as arithmetic and business mathematics may not be used.
- d. Laboratory Science, one year: One laboratory science, taken in the tenth, eleventh, or twelfth grade.
- e. Foreign Language, two years: Any one foreign language with a written literature may be used.
- f. Advanced Course, one or two years, satisfied by one of the following:

Mathematics: A total of one year of advanced mathematics — intermediate algebra, trigonometry, or other comparable mathematics courses.

Foreign Language: Either an additional year in the same language used for "e" above or two years of a second foreign language.

Science: A year course in any laboratory science completed subsequent to the laboratory science used for "d" above.

Elective Courses: The subjects listed above will account for 10 to 11 of the 15 high school credits required for admission to the University. A year course in high school is equivalent to one credit. The remaining credits provide an excellent opportunity for you to broaden your preparation for University work by taking elective courses in areas other than those in which you have concentrated.

Scholarship Requirement

Not only must you earn at least a C in each of the courses required for admission, you must also earn an overall average of B in those on the list which you take after the ninth grade.

In determining the required B average, the University will use a semester grade of A in one course to balance a semester grade of C in another. Grades of C or better received in courses taken in the ninth grade or earlier are not used in determining your scholarship average. The grades that appear on your official high school transcript, including those

earned in accelerated and advanced courses, are the grades the University will use in evaluating your record. Grades are counted on a semester basis unless a school gives only year grades.

You may repeat up to a total of two semester courses in which you received a grade of D or lower in order to meet the subject and scholarship requirements. The grades you earn in repeated courses, however, will not be counted higher than C in determining your scholarship average. If the courses you repeat were taken before the ninth grade, they will be treated as if you were taking them for the first time.

High School Proficiency Examination

The University of California will accept the Certificate of Proficiency, awarded by the State Department of Education upon successful completion of the California High School Proficiency Examination, in lieu of the regular high school diploma. However, all other University entrance requirements (subject pattern, grades, tests), must be met. The date of graduation on University records will be the date of the certificate. Entrance by College Entrance Examination Board scores will remain an option for the student ineligible on the basis of the high school record. General Educational Development (GED) Examinations cannot be used in lieu of a high school diploma.

Examination Requirement

All freshman applicants must submit scores from the College Entrance Examination Board (CEEB) tests listed below. If you are applying for admission to the fall quarter, you should take the tests no later than January of your senior year. The following tests are required:

1. Scholastic Aptitude Test (the verbal and mathematics scores you submit from this test must be from the same sitting).
2. Three Achievement Tests, which must include (a) English Composition, (b) one from among the social studies or one from among the foreign languages, and (c) one from mathematics or one from among the sciences.

If you are a California resident and your scholarship average in the required high school subjects is from 3.0 to 3.09 inclusive, you must earn a total score of 2,500 or higher in these five tests. If your scholarship average is 3.10 or above, these test scores will not be used to determine your eligibility. However, scores must be submitted by all applicants to

assist in counseling, guidance, and placement, and when possible to clear subject deficiencies and to satisfy the Subject A requirement (see p. 20).

Admission by Examination Alone

If you do not meet the scholarship and subject requirements for admission and have completed fewer than 12 transferable units of advanced standing, you may be able to qualify for admission as a freshman by examination alone. To do so, you must take the same CEEB tests discussed previously in areas not covered by college course work but must earn higher scores. The required total score on the Scholastic Aptitude Test is 1,100. You must earn at least 500 on each Achievement Test with a total Achievement Test score of at least 1,650, or at least 1,730 if a nonresident of California.

Admission to the Early Admission Experimental Program (EAXP)

The opportunity to enroll in a University course concurrent with the senior year of high school is available to certain recommended students. Enrollment is limited; high school students wishing more information about the program should contact the Office of Admissions or their high school counselors.

Admission in Advanced Standing

The University defines an "advanced standing applicant" as one who, after high school, has been a registered student in another college or university or in college-level extension classes other than a summer session immediately following high school graduation. An advanced standing applicant may not disregard a college record and apply for admission as a freshman.

If you are a nonresident applicant, you must meet the requirements listed below in addition to those described later in this section.

Advanced Standing Admission Requirements

The requirements for admission in advanced standing vary according to your high school record. If you have completed less than 12 quarter or semester units of transferable college credit since high school graduation, you must also satisfy the examination requirement for freshman applicants.



The transcript you submit from the last college you attended must show, as a minimum, that you were in good standing and that you had earned a grade point average* of 2.0 or better. If your grade point average fell below 2.0 at any one college you attended, you may have to meet additional requirements in order to qualify for admission.

As an advanced standing applicant you must also meet one of the following conditions:

1. If you were eligible for admission to the University as a freshman, you may be admitted in advanced standing at any time with an overall grade point average of 2.0 or better in another college or university.
2. If you were not eligible for admission as a freshman only because you had not studied one or more of the required high school subjects, you may be admitted after you have:
 - a. established an overall grade point average of 2.0 or better in another college or university.
 - b. completed, with a grade of C or better, appropriate college courses in the high school subjects that you lacked, and
 - c. completed 12 or more quarter or semester units of transferable college credit since high school graduation or have successfully passed the CEEB tests required of freshman applicants.
3. If you were ineligible for admission to the University as a freshman because of low scholarship or a combination of low scholarship and a lack of required subjects (see p. 36), you may be admitted after you have earned a

*Your grade point average is determined by dividing the total number of acceptable units you have attempted into the number of grade points you earned on those units. You may repeat courses that you completed with a grade lower than C up to a maximum of 16 quarter units without penalty.

The scholarship standard is expressed by a system of grade points and grade point averages earned in courses accepted by the University for advanced standing credit. Grade points are assigned as follows: for each unit of A, 4 points; B, 3 points; C, 2 points; D, 1 point; I and F, no points; P/NP, no points but are included in the unit total.

grade point average of 2.0* or better in at least 84 quarter units (56 semester units) of college credit in courses accepted by the University for transfer.

Nonresident Advanced Standing Applicant

In addition to meeting the regular requirements for admission in advanced standing, a nonresident of California must also have a grade point average of 2.8 or higher in the college courses that are accepted by the University for transfer credit.

Nonresident applicants lacking any of the required subjects in high school must complete college courses in those subjects with a grade of C or higher. A nonresident applicant who graduated from high school with less than a 3.4 grade point average in the subjects required for freshman admission must have completed at least 84 quarter units (56 semester units) of transferable work with a grade point average of 2.8 or higher. Upon successful completion of that work two years of the required high school subjects may be waived.

Admission for a Second Bachelor's Degree

Some students may wish to obtain a second bachelor's degree in a field different from that of the first degree. Admission as a candidate for a second bachelor's degree requires that the applicant be fully eligible for admission to the University and have strong promise of academic success in the new area. All such admissions are subject to the approval of the dean or director of the UCI school or program in which the second degree will be earned. Graduates of schools other than UCI should apply directly to the Office of Admissions. UCI graduates should file application through the Registrar's Office.

ADMISSION OF INTERNATIONAL (FOREIGN) STUDENTS

Nonimmigrant, international (foreign) applicants (see p. 35) must submit an Application for Admission for Students with Study Outside the United States. The foreign student is considered as a nonresident of California for meeting scholarship requirements for admission and for tuition pur-

*The 2.0 advanced standing requirement for admission is experimental and is currently under evaluation. Community colleges will have at least one year of lead time for any policy changes concerning these requirements. No modification in current policy will be implemented for fall, 1977.

poses. Questions concerning foreign undergraduate admission should be directed to the foreign admissions counselors in the Office of Admissions.

Credentials for applicants for admission from another country are evaluated in accordance with the general regulations governing admission. An application, official certificates, and detailed transcripts of records should be submitted early to the Office of Admissions during the appropriate filing periods. When necessary, official translation of the transcript will be required.

A Confidential Financial Statement is included with each application for admission. In addition to fulfilling the scholarship requirements for admission, foreign applicants must also demonstrate financial capability, and their admission will be deferred until they can demonstrate that the necessary funds are available for the duration of their studies.

Also, the international applicant whose native language is not English is required to take the Test of English as a Foreign Language Exam (TOEFL) and score a minimum of 550. The admission of applicants who do not meet the necessary score will be deferred until they can demonstrate their proficiency in English. Arrangements to take the TOEFL test may be made by writing directly to TOEFL, Educational Testing Service, P.O. Box 899, Princeton, New Jersey 08540. Students must request the Educational Testing Service to forward results of their tests to the Office of Admissions. The foreign student who has completed an acceptable English Composition course with at least a "C" average in an accredited American institution of higher education is exempt from the TOEFL Exam.

Credit for Native Language

Students whose first language is not English may receive credit for course work in their native language and literature, providing such courses were completed on the college level in the country of the vernacular, or on the upper-division or graduate level at UCI or another accredited English-speaking institution.

APPLICATION PROCEDURES

Application Filing Periods

Application packets for undergraduate admission to the University are available from the counseling office of any California high school or community college, or from any University of California Admissions Office. Submit your

completed application and related materials to the Office of Admissions, 245 Administration Building, University of California, Irvine; Irvine, California 92717 on or after the appropriate date below:

Winter quarter, 1978	July 1, 1977
Spring quarter, 1978	October 1, 1977
Fall quarter, 1978	November 1, 1977
Winter quarter, 1979	July 1, 1978
Spring quarter, 1979	October 1, 1978

The beginning of the application filing period is the same for all campuses. Each campus will accept for consideration all applications filed during the first month of the filing period. After the first month the closing deadline will vary from campus to campus. You are encouraged to file your application early in the filing period to be assured consideration for the program and campus of your choice. Once enrollment quotas have been filled, additional applications cannot be accepted and will be directed to another University campus where enrollments are still open, according to preferences shown on the application.

Application Fee

There is a *nonrefundable* fee of \$20 for filing an application for admission. Make your check or money order payable to Regents-UC and attach it to your application form.

Duplicate Applications

Only one application for the University of California is permissible, and it entitles you to attend the campus of your choice if there is space available. Fees submitted with duplicate applications will not be refunded.

Change of Campus

If, after you have applied to one campus, your plans change and you prefer to attend a different campus of the University, you should write to the Director of Admissions, 570 University Hall, Berkeley, California 94720. In your letter indicate the new campus you wish to attend, and give your reasons for the change. Your application will be transferred to that campus if enrollment is open, but you will receive a new admission priority assignment based on the date on which you made your request for the change.

Transcripts

The Office of Admissions requires complete, accurate, and up-to-date information about your academic program and your work in progress in order to process and respond to your application in a timely manner.

All applicants are responsible for requesting that the high schools from which they graduated and each college attended send official transcripts of work promptly to the UCI Office of Admissions.

If you are applying for admission as a freshman, ask your high school to submit a preliminary transcript showing your work through the junior year. The transcript also should list the courses you are now taking and those you plan to take. You must also arrange for a final transcript that includes your courses and grades for the senior year and a statement of graduation or a Certificate of Proficiency. (See p. 37.) If you have completed any college courses before or at the time of graduation, a transcript of your record from the last college attended is required.

If you are applying for admission in advanced standing, have your graduating high school send a transcript of your record immediately to the Office of Admissions, which will also need a transcript from each college you have attended. A preliminary transcript from your present college should list the courses you are now taking and those you plan to take before transfer.

If you attend any other schools or colleges after your application to the University has been filed, your work there is considered to be part of your record and must be reported to the Office of Admissions.

The transcript and other documents that you submit as part of your application become the property of the University; they cannot be returned to you or forwarded in any form to another college or university.

Examination Arrangements

Make arrangements to take the required tests with the Educational Testing Service, P.O. Box 1025, Berkeley, California 94701, or P.O. Box 592, Princeton, New Jersey 08540. (Test fees should be paid to the Educational Testing Service, not the University.) Your test scores will be regarded as official only if they are reported directly to the Admissions Office by the Educational Testing Service. Also, your final notification of admission cannot be released until your scores from the CEEB tests have been received by the Office of Admissions.

In 1977-78 SAT and Achievement Tests will be offered concurrently on the following Saturday mornings:

November 5, 1977	March 11, 1978
December 3, 1977	May 6, 1978
January 28, 1978	June 3, 1978

In California and Texas a special administration of the SAT *only* will be offered on October 15, 1977. Details on testing centers, the availability of Achievement Tests, and exceptions to the above test dates are available from the Educational Testing Service and from most high school counseling offices.

Notification of Admission

Candidates for the fall quarter will be notified whether their applications have been retained for consideration by their first choice campus, or redirected, by February 15. Most candidates who applied early in the filing period will receive notice of their admissibility by April 15. (There are similar notification periods for other quarters.) Delays will occur if required records have not been received by the Office of Admissions. Since each application is considered individually, the length of time before notification is subject to some variation depending upon the unique circumstances of each applicant.

If offered admission by the University, you will be asked to sign and return a Statement of Intention to Register, accompanied by a *nonrefundable* fee of \$50. This amount will be applied toward payment of your University fees, provided you register in the quarter to which you have been admitted.

Admission to UCI is not an assurance of financial aid nor does it guarantee assignment to University housing. Separate applications are required of applicants desiring financial aid or University housing, and receipt of communications from the Financial Aid or Housing Office does not imply that eligibility for admission has been established.

Reapplication and Deferred Admission Privilege

In general, an application for admission is effective only for the quarter for which it is submitted. If you are not eligible for admission, or if you are admitted and do not register, you must file a new application with the required fee if you wish to be admitted to another quarter. The new application will be considered in light of the admission requirements in effect and the space available on the campus.

However, qualified applicants for undergraduate admission may request to have their admissions deferred until a later quarter. Requests for admission deferment should be addressed to the Director of Admissions. Every consideration will be given to deferments requested for valid reasons, though applicants should be aware that responses to such requests may vary from quarter to quarter or major to major due to changing enrollment conditions.

Educational Opportunity Program (EOP)

Applicants who wish to be considered for the Educational Opportunity Program should refer to page 65 for supplementary application procedures.

ADDITIONAL PREPARATION FOR UNIVERSITY WORK

Specific high school subjects are required for admission to the University, whether you are applying as a freshman or in advanced standing. In addition, other preparatory subjects are strongly recommended for many University programs in order to give students the needed background in their chosen fields of study. The lack of a recommended high school subject may delay a student's graduation from the University. For example, students planning to major in one of the sciences will find it advantageous to complete more than two years of mathematics and additional science courses while still in high school. Courses beyond the a-f requirements should be chosen to broaden your experience in such fields as social sciences and fine arts. You will find details about these recommendations in *Prerequisites and Recommended Subjects*, a University publication sent each year to high school and college counselors.

Additionally, there are options which enable students to earn credit which will be applicable to graduation from college. Some of these options are available even before you graduate from high school.

Advanced Placement

The Advanced Placement Examinations of the College Entrance Examination Board are taken, usually during the senior year, in conjunction with courses taken in high school. You will receive ten quarter units of University credit for each examination (except Latin, Physics C, Part 1, 2, and Mathematics AB which earn five quarter units each) in which you earn a score of 5, 4, or 3. A maximum of ten units can be earned for a combination of Physics B and Physics C examinations. These credits will apply toward the total required for graduation from the University. Information about specific application of Advanced Placement toward subject credit may be obtained from the Office of Relations with Schools and Colleges.

College Level Examination Program (CLEP)

Ten quarter units are granted for each *area* examination in Social Science/History, Natural Science, and Humanities passed with a score of 500 or better.

The amount of credit granted for each *subject* examination passed with a score of 50 or better will be based on the scope of the material covered and transferability as determined by the Office of Admissions. Credit will not be given for CLEP Examinations that duplicate course work.

College-Level Courses

The University gives unit credit to students for courses they have completed in other accredited colleges or universities. To be accepted for unit credit, the courses must be consistent with those offered by the University. All applicants with questions regarding transfer of credit should contact the Office of Admissions. See page 57.

PLANNING FOR TRANSFER TO UCI

The University is committed to serve as fully as possible the educational needs of students who transfer from other California collegiate institutions. The principles covering transferability of unit credit and course credit are explained below and, unless otherwise indicated, are much the same whether transfer is from a two-year or a four-year institution. Information regarding eligibility for transfer may be found above in the section on Admission in Advanced Standing.

Unit Credit for Work Taken Elsewhere

The University of California grants unit credit for courses completed in other accredited colleges and universities when such courses are consistent with the functions of the University as set forth in the Master Plan for Higher Education in California. Equivalent advanced standing credit from institutions on the semester calendar may be determined at a ratio of one semester unit to one-and-one half quarter units. (To graduate from UCI 180 quarter units, equivalent to 45 UCI quarter courses, are needed.)

California Community Colleges

Students may find it advantageous or necessary to complete the first two years of a University of California undergraduate program at one of the California Community Colleges, which are an integral part of the state's system of higher education. High school graduates who cannot be accommodated at their first campus preference may choose to attend a community college and transfer to their preferred University campus at a later time. A student may earn a maximum of 105 quarter units (70 semester units) toward a University degree in a community college. No further unit credit may be transferred from a community college, although subject credit for courses taken will still be granted.

Students anticipating transfer to UCI are urged to consult with their community college counselors as to the acceptability of course work in the University. In addition, they should familiarize themselves with the course numbering scheme of the community college catalogue, since the course numbers usually reflect the transferability of courses.

Four-Year Institutions

Unit credit is granted for courses consistent with the University of California's functions and which have been completed in colleges or universities accredited by the appropriate agencies. While limitations of credit may be imposed in certain subject areas, these are consonant with the curricula for all students in the University of California. No defined maximum number of units which can be earned toward the degree is set for students transferring from four year institutions. However, see page 20 for UCI graduation requirements, including requirements for units earned in residence at this campus.

University of California Extension

Course numbers prefixed by XB, XD, XI, XL, XR, XSB, and XSC are granted credit toward the bachelor's degree on the same basis as courses taken in residence at any accredited collegiate institution. Courses taken in UC Extension prior to regular enrollment are not included on the permanent UC record, nor are the grades included in the UC average.

Decisions regarding the acceptability of extension courses taken in institutions other than the University of California rest with the Office of Admissions. Decisions regarding the applicability of such courses toward specific degrees and majors rest with the respective faculties. See page 57.

Course Credit for Work Taken Elsewhere

The policies above refer only to the unit transferability of courses and are uniformly implemented on all campuses of the University. Thus, courses which are determined by the University of California to be transferable are assured only of being granted elective course credit. The application of transfer work to specific course and major requirements is determined by the student's academic dean.

The Irvine campus makes every effort to eliminate all barriers to orderly progress from California community colleges into its own programs. To this end, many community colleges have entered into articulation agreements with UCI so that the specific application of their courses to UCI's

University, school, and departmental major requirements may be readily communicated to prospective transfer students. Consult your community college counselor. You may also contact the Office of Relations with Schools and Colleges for specific information on planning a program for transfer.

The University of California bulletin *Prerequisites and Recommended Subjects* should also be consulted for planning the lower-division course of study for all programs offered on the campuses of the University of California.

Course Requirements

Course requirements at UCI are in four categories: University of California, UCI, school, and departmental. Courses not specifically applicable to these are considered to be electives. See pages 20-21 for a complete description of these requirements.

University of California Requirements

Subject A. Among the means of meeting this requirement is the completion of an acceptable one-quarter (four units) or one-semester (three units) transfer course in English composition with a grade of C or better.

The American History and Institutions Requirement. This requirement may be met by completing in high school one year of U.S. history or one semester of U.S. history and one semester of U.S. government with a grade of at least C, or upon certification by another California collegiate institution.

UCI Requirements

Breadth Requirement. The breadth requirement may be satisfied by courses appropriate to UCI offerings and may be met at any time during the undergraduate years. Transfer students should not feel that these must necessarily be completed in the lower division.

Students who transfer from a four-year institution and who have completed the general breadth requirements of that college will be considered to have met the total breadth requirement of UCI. Students who transfer from a community college and who have met the general breadth requirements of any campus of the University of California prior to transfer will also be regarded as having met the breadth requirement. Students who transfer from colleges on the semester calendar may fulfill the breadth requirement by completing four semester courses (minimum twelve semester units) in one school outside the major and two semester courses (minimum six semester units) in two

other schools outside the major. Students who, upon transfer, have not completed whatever breadth requirements may have been in progress for another campus of the University of California may elect to complete at UCI either that program or the UCI breadth distribution.

The courses and descriptions listed elsewhere in this Catalogue may be used by prospective transfer students as a guide for selecting courses of similar content and purpose in their own institutions. However, it is strongly advised that they consult with their counselors to verify the transferability of such courses and their applicability to the breadth requirement. No student who has taken a course which is accepted for credit by the Director of Admissions and the University Registrar and which has been determined by a community college as acceptable toward completion of the breadth requirement shall incur any loss of credit in satisfaction of the requirement.

School Requirements

Since school requirements occasionally cross school lines (e.g., physical science requirements for all majors in the School of Biological Sciences), courses taken to fulfill a school requirement may at the same time be applicable toward the University breadth requirement. Also, courses taken to fulfill a departmental major requirement may, at the same time, fulfill a school requirement or the University breadth requirement (see p. 20).

Although course equivalencies for the breadth requirement are liberally interpreted for purposes of transfer, courses to be applied toward school and departmental major requirements must be more precisely equated with UCI courses in unit value and in content. Generally speaking, it is advisable for students to satisfy as fully as possible the requirements of their intended UCI school prior to transfer.

Departmental Major Requirements

Courses to be applied toward departmental major requirements must be more precisely equated with UCI courses in content and purpose than is the case with courses applicable to the breadth requirement (see p. 20 and departmental sections). Prospective transfer students should consult with their counselors as to the applicability of courses toward UCI departmental requirements.

Prospective transfer students should address specific inquiries about their programs to the respective schools or departments at UCI. Community colleges wishing to clarify the status of transfer courses should consult with the Office of Relations with Schools and Colleges at Irvine or the University of California campus closest to them.

ADDITIONAL POLICIES RELATING TO ADMISSIONS

Nonresident Tuition Fee

The following statement was provided by the Office of the Attorney in Residence Matters.

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 of \$635.00 for the quarter or \$952.50 for the semester. 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.

General

California residence is established by an adult who has relinquished his or her prior residence and is physically present within the state with the intent to make California the permanent home. California residence must be established for more than one year prior to the term for which resident classification is requested. Indicia of California residence include, but are not limited to: registering and voting in California elections; designating California as the permanent address on all school and employment records, including military records if one is in the military service; obtaining a California I.D. card or drivers license; obtaining California vehicle registration; paying California income taxes as a resident; establishing an abode where one's permanent belongings are kept; licensing for professional practice in California, etc. Conduct inconsistent with the claim of California residence includes, but is not necessarily limited to: maintaining voter registration and voting in person or by absentee in another state; obtaining a divorce in another state; attending an out-of-state institution as a resident; obtaining a loan requiring residence in another state; maintaining out-of-state drivers license and vehicle registration, etc.

As a general rule, students seeking resident classification must perform all acts of intent which are applicable to their particular circumstances within the one year durational period. In addition, a substantial number of these acts must be performed when the student first comes to California or very shortly thereafter. If they are not, the durational period for reclassification is extended until both presence and intent have been demonstrated for one year.

A student who is within California for educational purposes only does not gain the status of resident regardless of the length of his or her stay in California.

The residence of the parent with whom an unmarried minor (under age 18) child maintains his or her place of abode is the residence of the unmarried minor child. When the minor lives with neither parent his or her residence is that of the parent with whom he or she maintained his or her last place of abode. The minor may establish his or her residence when both parents are deceased and a legal guardian has not been appointed. 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 relinquishment of a parent's right of control.

A man or a woman establishes his or her residence. A woman's residence shall not be derivative from that of her husband, or vice versa.

Exceptions

1. A student who remains in this state after his or her parent, who was theretofore domiciled in California for at least one year 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 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.
2. Nonresident students who are minors or 18 years of age and can evidence that they have been totally self-supporting through employment and actually present within California for the entire year immediately prior to the residence determination date and have evidenced the intent to make California their permanent home may be eligible for resident status.
3. 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.

4. Exemption from payment of the nonresident tuition fee is available to the natural or adopted child, stepchild, or spouse who is a dependent of a member of the United States military stationed in California on active duty. Such resident classification may be maintained until the student has resided in California the minimum time necessary to become a resident. If a student is enrolled in an institution and the member of the military is transferred on military orders to a place outside the United States immediately after having been on active duty in California, the student is entitled to retain resident classification under conditions set forth above.
5. 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, shall be entitled to resident classification until he or she has resided in the state the minimum time necessary to become a resident.
6. A student who is an adult alien is entitled to resident classification if the student has been lawfully admitted to the United States for permanent residence in accordance with all applicable provisions of the laws of the United States and has thereafter established and maintained residence in California for more than one year immediately prior to the residence determination date.
A student who is an adult alien shall be entitled to resident classification if the student is a refugee who has been granted parolee status or indefinite voluntary departure status in accordance with all applicable laws of the United States; provided that the student has lived in the state for one year. (Effective until June 30, 1980.)
7. A student who is a minor alien shall be entitled to resident classification if the student and the parent from whom residence is derived have been lawfully admitted to the United States for permanent residence, provided that the parent has had residence in California for more than one year after acquiring a permanent resident visa prior to the residence determination date for the term.
A student who is a minor alien shall be entitled to resident classification if both the student and the parent are refugees who have been granted parolee status or indefinite voluntary departure status in accordance with

all applicable laws of the United States; provided that the student has lived in this state for one year. (Effective until June 30, 1980.)

8. Children of deceased public law enforcement or fire suppression employees, who were California residents and who were killed in the course of law enforcement or fire suppression duties, may be entitled to resident status.

New and returning students are required to complete a Statement of Legal Residence. The student's status is determined by the Attorney in Residence Matters' Deputy who is located in the Registrar's Office.

The student is cautioned that this summation is not a complete explanation of the law regarding residence. The student should also note that changes may have been made in the rate of nonresident tuition and the residence requirements between the time this catalogue statement is published and the relevant residence determination date. Regulations have been adopted by The Regents, a copy of which is available for inspection in the Registrar's Office of the campus.

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 also is subject to University discipline. Resident students who become non-residents must immediately notify the Attorney in Residence Matters' Deputy.

Inquiries from prospective students regarding residence requirements for tuition purposes should be directed to the Attorney in Residence Matters, 590 University Hall, 2200 University Avenue, Berkeley, California 94720. No other University personnel are authorized to supply information relative to residence requirements for tuition purposes. Any student, following a final decision on residence classification by the Residence Deputy, may make written appeal to the Attorney in Residence Matters at the above address within 120 days after notification of the final decision by the Residence Deputy.

Medical Examination

All new students and those returning after an absence of two or more quarters require medical examinations and health clearances, respectively, before the first day of the quarter. See page 71.



Fees, Expenses, Financial Aid

UC IRVINE - 1977-1978

Fees, Expenses, and Financial Aid

ESTIMATED EXPENSES

The exact cost of attending the University of California, Irvine will vary. Undergraduate and graduate figures are based on three quarters of attendance. Figures for the College of Medicine are based on four quarters of attendance. It is expected that most medical students will have two vacation quarters during four calendar years of enrollment. Fees are due and payable at the beginning of each quarter. *All fees are subject to change without notice.* The following is intended only as a guide in computing the average annual expenses.

California Residents

	Under-graduate	Graduate	Medical
University Registration Fee	\$ 348	\$ 348	\$ 451
Educational Fee	300	360	480
Associated Students Fee	27	27	36
Room and Board	2,165 ¹	2,165	2,900
Books, Materials, Supplies ²	240	360	1,000
Personal Expenses (Laundry, Clothing, Transportation, Recreation)	1,000	1,000	1,350
Average Annual Expenses	4,080	4,260	6,217

Nonresidents

All above costs apply	4,080	4,260	6,217
Nonresident Tuition	1,905	1,905	1,905
Average Annual Expenses	\$5,985	\$6,165	\$8,122

¹ University Residence Halls (double occupancy), \$1,800.

² Actual costs will depend upon a student's program.

FEES

Under terms of the Alan Pattee Scholarship Act a surviving child of a California resident who died as a result of accident or injury incurred in the performance of active law enforcement or active fire suppression and preventive duties is eligible to apply for waiver of certain fees. Additional information concerning this Act is available from the Registrar's Office.

Registration Fee

The University Registration Fee is \$116 per quarter. The full fee is required of all students regardless of the number of courses taken. This fee, which must be paid at the time of registration, is a charge to each student for services which benefit the student and which are complementary to, but not a part of, the instructional programs. No part of this fee is remitted to students who may not desire to make use of all or any of these services. The \$50 advance deposit on the Registration Fee (Undergraduate Acceptance of Admission Fee), required of new undergraduates, is applied to the full fee when the student registers. Continuing students are required to pay all outstanding fines and other debts, in full, at the time they pay their Registration Fee for an upcoming term.

Educational Fee

The Educational Fee is \$100 per quarter for undergraduate students and \$120 per quarter for graduate students. Legal residents of the State of California with demonstrated financial need may defer payment of the Educational Fee by accepting obligation to repay, at a later date, the sum deferred. Students interested in this provision should contact the Financial Aid Office, 204 Administration Building.

Part-time Status

The Educational Fee has been reduced 50% (from \$100 to \$50 per quarter) for undergraduates enrolled for *eight units or less*, providing their reduced enrollment is *approved in advance* by the appropriate academic dean for the following reasons: financial need, health, or family responsibilities. Part-time status lapses at the end of each academic quarter. A student must, therefore, reapply each quarter that part-time status is desired.

Associated Students (ASUCI) Fee

The Associated Students Fee of \$9 per quarter is administered by the Associated Students of the University of California, Irvine to provide social activities, lectures, forums, concerts, and other activities at either a reduced charge, or no charge, to UCI students. This fee is required of all students.

Tuition Fee

Students who are not recognized as residents of the State of California for tuition purposes are required to pay a \$635 quarterly Nonresident Tuition Fee, to a maximum of \$1,905 per academic year. Nonresident undergraduates enrolled in less than 12 quarter units pay Nonresident Tuition at \$53 per unit. See page 44.

Payment of Fees

Fees for each quarter are due and payable in advance within deadlines published in the Schedule of Classes. A student will not be enrolled in classes or receive any University benefits until fees are paid in full.

Miscellaneous Fees

Undergraduate Acceptance of Admission Fee ¹ (applied toward University Registration Fee)	\$50.00
Application Fee ¹ (includes readmissions and intercampus transfers)	20.00
Advancement to Candidacy for Ph.D. ²	25.00
Duplicate Diploma	22.00
Master's Thesis and Doctoral Dissertation Filing Fee ²	58.00
Special Library Borrowing Privilege per Year, nonrefundable, renewable	10.00
Transcript of Record ³	2.00

¹ Nonrefundable in all cases.

² See page 33.

³ This charge is for the first copy of each request. There is a charge of \$1.00 for each additional copy ordered at the same time.

Service Charges

Breakage (charges will be assessed by department based on actual replacement costs)	
Changes in Study List after Announced Dates (each petition)	\$ 3.00
Duplicate Registration and/or Other Cards from Registration Packet (each petition)	3.00
Duplicate Student Identification Card (each petition)	3.00
Late Payment of Fees	10.00
Late Enrollment in Classes	25.00
Reinstatement Fee	10.00
Removal of Grade I (each petition)	5.00
Return Check Collection	5.00
Credit by Examination (each petition)	5.00
Parking Fee (quarterly)	9.00

FEE REFUNDS

New undergraduates who cancel their registration before the first day of instruction are entitled to a refund of Registration Fee paid except for the \$50 nonrefundable Acceptance of Admission Fee; other fees paid are refunded in full.

For all continuing and readmitted students, and new graduate and medical students, there is a service charge of \$10 for cancellation of registration or withdrawal before the first day of instruction.

The Associated Student (ASUCI) Fee is refunded only for cancellation of registration *prior to* the first day of orientation.

After instruction begins, a withdrawal form is necessary. Students who withdraw from the University during the first five weeks of instruction will receive refunds¹ of Registration Fee, Educational Fee, and Nonresident Tuition Fee, less the \$50 nonrefundable Undergraduate Acceptance of Admission Fee, on the following basis, effective with the first day of instruction and the effective date of withdrawal: 1-14 calendar days, 80% of amount paid; 15-21 calendar days, 60% of amount paid; 22-28 calendar days, 40% of amount paid; 29-35 calendar days, 20% of amount paid; 36 calendar days and over, 0%. The effective date of withdrawal is normally the date the student files an official notice of

¹ If no credit for courses is received, a full refund of the Registration Fee of the regular session will be granted to all students entering the armed forces prior to the sixth week of the quarter. No refund thereafter.

withdrawal from the University. However, under extenuating circumstances, the Dean of Students, the Office of Special Programs, or the Dean of the Graduate Division, as appropriate, may determine that the effective date of withdrawal occurred prior to the filing of the notice. It is presumed that no University services will be provided to the student after that date.

Claims for refund of fees must be presented during the fiscal year (July 1 to June 30) in which the claim is applicable. To obtain a refund, the student must surrender the identification card to either the Dean of Students, the Office of Special Programs, or the Dean of the Graduate Division at the time of withdrawal. Refund checks are issued by the Accounting Office and are generally received about four weeks after the official withdrawal is submitted.

If any portion of a student's fees has been paid by the University or outside sources, that portion of the refund will be returned directly to the source of those funds.

FINANCIAL AID

Lack of funds need not be a barrier to attending UCI; almost one third of enrolled students receive some form of financial aid. Students who show that they need financial assistance in order to attend are eligible for financial aid through the Financial Aid Office. In addition to awarding aid on the basis of financial need, the Office also administers a few scholarship programs that are based primarily on academic excellence.

Students who receive financial aid will receive funds from one or more of the following sources: scholarships, grants, loans, and employment. These sources are described briefly in the following sections; more detailed information can be obtained from the Financial Aid Office.

To obtain financial aid, new and continuing students must file an application with the Financial Aid Office as early as possible. All students who are applying for scholarships must have their applications filed by January 16, 1978. All applicants for grants, loans, and work-study should file before April 17, 1978; applications filed after April 17 will be considered only for winter and spring quarter awards.

The University expects the student and the parent (or spouse) to contribute toward the educational costs to every extent possible. In addition to filing a basic application, applicants for financial aid must also submit various sup-

porting materials that the Financial Aid Office uses to determine each student's financial need.

All students must file a Financial Aid Form (FAF). For dependent students, the analysis of this statement determines the amount a student's parents can be expected to contribute toward the cost of the student's education. For independent students, the analysis determines the amount a student and/or spouse can contribute to the cost of the student's education.

The various financial aid forms, along with detailed instructions on filing, are available from the Financial Aid Office, 204 Administration Building.

All undergraduate financial aid applicants are also required to apply for the Federal Basic Educational Opportunity Grant and for the California State Scholarship or California College Opportunity Grant.

Basic Educational Opportunity Grant (BEOG)

This grant program is federally funded and provides awards up to a maximum of \$1,400 for the academic year. To be eligible, applicants must be U.S. citizens or permanent residents and must be enrolled as undergraduates and have not previously received a bachelor's degree. Applications are generally available at high schools and financial aid offices in February.

California State Scholarship

This scholarship program is state funded and provides awards ranging from \$300 to \$600 for the academic year. To be eligible, applicants must be California residents and demonstrate financial need. Applications are available at high schools or may be obtained from the California Student Aid Commission, 1410 Fifth Street, Sacramento, California 95814. Applications usually are due in November for the following year.

California College Opportunity Grant (CCOG)

This grant program is state funded and provides awards up to a maximum of \$1,100. To be eligible, applicants must be California residents, demonstrate financial need, and be entering college or not have completed more than one semester of college work. The awards are for students from disadvantaged families. Applications are available at high schools or may be obtained from the California Student Aid Commission, 1410 Fifth Street, Sacramento, California 95814. Applications usually are due in November for the following year.

Scholarships

Regents' scholarships, one of the highest honors conferred upon UC students, are awarded on the basis of academic excellence and exceptional promise, without reference to financial need. Students are eligible upon graduation from high school or upon completion of the sophomore year of college. Medical students are eligible during any year of their study in medical school. The appointments run for four years for students entering from high school or two years for students appointed after their sophomore year. Regents' Scholars receive a \$100 honorarium the first year of their appointment and a stipend each year to cover the difference between their resources and the yearly standard cost of education.

President's and University scholarships are offered to entering and continuing students who show evidence of high scholastic attainment and financial need. These awards are renewable by submitting an application for consideration each year.

Other special scholarships are available to students who qualify. While a student need not apply for a specific scholarship, applicants with special qualifications will receive careful consideration.

For information on Air Force ROTC, see page 15.

Grants

Grants are awarded on the basis of financial need. There is no repayment requirement.

Basic Educational Opportunity Grant (BEOG): provides gift aid for undergraduate students. These federal grants range from \$212 to \$1,400 a year. Financial need is determined by the federal government.

Supplemental Educational Opportunity Grant (SEOG): provides gift aid for undergraduate students who demonstrate exceptional financial need. These federal grants range from \$200 to \$1,500 a year, depending upon financial need.

UC Grant-In-Aid (GIA): provides gift aid for full-time students who demonstrate financial need. The amount awarded depends upon financial need.

Educational Fee Grant (EFG): provides aid for undergraduates in their first year of attendance at UCI. Recipients must be California residents, enrolled full time, and must demonstrate financial need. The maximum grant at a UC

campus is \$100 per quarter (to pay the Educational Fee) available only for the first three consecutive quarters in attendance.

Improved Access Grant (IAG): provides gift aid for undergraduates who transfer to UCI from a postsecondary educational institution other than the University of California. Recipients must be accepted at UCI, enrolled full time, and must demonstrate financial need. The amounts of this University of California award vary depending upon financial need. Preference is given to students transferring from community colleges.

Loans

National Direct Student Loan Program (NDSL): provides long term federal loans for U.S. citizens and permanent residents. The amounts awarded vary, depending on financial need, but cannot exceed \$2,500 for the first two years or \$5,000 for the undergraduate years. No interest is charged nor is repayment required while the borrower is enrolled in at least one half of the normal academic load. Interest of 3% a year begins nine months after the borrower ceases to be enrolled, or is enrolled less than half time, and repayment must be completed within a ten-year period. Graduate students may receive an aggregate of \$10,000 which includes awards as an undergraduate.

Educational Fee Deferment Loan Program (EFDL): enables California residents who establish financial need to delay payment of all or a portion of the University of California's Educational Fee. Repayment at 3% interest begins nine months after graduation or withdrawal from higher education.

Regents' Loan Program: provides long-term loans to full-time students who demonstrate financial need. The maximum amount for an academic year is \$1,000. The 3% interest begins when a student leaves UCI. Repayment begins six months after the student ceases to be enrolled full time and must be completed within five years. Cosigners are required.

Federally Insured Student Loan Program (FISL): federally supported and approved through participating local banks or other lenders, allows an undergraduate student to borrow up to a total of \$7,500. A graduate or medical student may borrow up to \$10,000, which includes any loans received as an undergraduate. You must be a U.S. citizen or a permanent resident to be eligible. The maximum loan is \$2,500 per year. The lender determines, on the basis of an

analysis from the UCI Financial Aid Office, whether you or the federal government will pay the 7% interest on the loan while you are enrolled in school. Application forms are available at the UCI Financial Aid Office.

Health Professions Student Loans: for medical students only. The Health Professions Student Loan Program makes loans available to medical students working toward the degree of Doctor of Medicine. Recipients must be enrolled as full-time students, be citizens or permanent residents of the United States, and must demonstrate "exceptional financial need." Students may borrow up to \$2,500, plus the costs of tuition, per year at an interest rate of 7%. Borrowers may repay their loan over a ten-year period beginning one year after completion of study at a school of medicine. Payments may be deferred for advance training, including internship and residency.

In addition to these long-term loans, various philanthropic individuals and organizations have provided money to create a short-term student loan fund. These loans, which do not bear interest, are of a short-term nature to cover emergency needs.

Work Study

College Work-Study Program: provides part-time employment for U.S. citizens and permanent residents who are at least half-time students and demonstrate financial need. The maximum amount recipients can earn under this federal program is determined by their financial need.

President's Work-Study Program: is similar to the College Work-Study Program except that recipients must be enrolled full-time and noncitizens are also eligible.

Veterans' Work-Study Program: is available only to U.S. military veterans. Applications and detailed information are available from the UCI Veterans Coordinator's Office.

Summer Work-Study Program: may be available to students enrolled in summer session or planning to enroll at UCI in the fall quarter. Students who are awarded Summer Work-Study and who are not enrolled in summer classes are expected to save a sizeable portion of their earnings for use during the following academic year.

Aid for Graduate Students

Graduate students should contact the UCI Graduate Division, 345 Administration Building, (714) 833-7021, for information about application procedures for graduate fellowships, traineeships, or teaching and research assistantships.

Student Employment

The Career Planning and Placement Center assists UC students, their spouses, and alumni in obtaining part- or full-time employment during the academic year and summer vacation. Students with Work-Study grants may obtain on-campus or off-campus job referrals in the Career Planning and Placement Center. The Center is located in 120 Social Science Tower.



Regulations and Procedures

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Academic Regulations

GRADING

- A – Excellent (4.0 grade points per unit)
- B – Good (3.0 grade points per unit)
- C – Average (2.0 grade points per unit)
- D – Lowest passing grade (1.0 grade point per unit)
- F – Not passing (no grade points)
- I – Incomplete
- P – Pass (equal to grade C or better)
- NP – Not Pass
- S – Satisfactory (Graduate students only in courses so designated by the Graduate Council)
- U – Unsatisfactory (Graduate students only in courses so designated by the Graduate Council)
- IP – In Progress (Restricted to certain sequential courses, so designated by the Committee on Courses, for which the final quarter grade of a multi-quarter sequence course is assigned to the previous quarter(s) of the sequence)
- NR – No Report (Given when student's name was on official roster of class but instructor turned in no grade for the student. NR turns to F after one quarter on student's record unless instructor at the student's request clears the record or replaces NR with another grade.)

Plus suffixes may be attached to the grades B, C; and D; minus suffixes may be attached to the grades A, B, C, and

D. Plus grades carry three-tenths grade point more per unit, and minus grades carry three-tenths grade point less per unit than unsuffixed grades.

At the end of each quarter, the student is given a copy of the permanent record. On the copy, the student will find grades for all the quarters taken at UCI, a computation of grade point average at the University of California, and a list of the University requirements completed (Subject A, American History and Institutions, etc.).

Regulations require for graduation the accumulation of credit for 180 quarter units with an average grade of at least C (grade point average of at least 2.0). A course at UCI normally offers four quarter units of credit, and the term "course" may be understood in what follows to carry four units. The grade point average is the sum of all accumulated grade points (grade points earned in a course per unit *times* the unit value of the course) divided by the sum of all units attempted.

It should be noted that final grades as reported by professors at UCI are permanent and final. A professor may not change a final grade except to correct a clerical or procedural error.

Incomplete Grades

"I" or incomplete grades are granted by an instructor to a student when the student's work is of passing quality, but is incomplete because of circumstances beyond the student's control, and when the student has been excused by the instructor from completing the quarter's work.

The time limit for making up an "I" grade is three quarters of enrollment. After this time the "I" can no longer be

replaced and will appear permanently on the record. The student should consult the instructor to determine how the incomplete may be made up. Once the work is completed, the student should ask the instructor to submit a change of grade form to the office of the dean of the school in which the course was offered. The student should *not* re-enroll in the course to make up the incomplete.

Courses graded "I" are not included in computation of the grade point average which appears on the student's permanent record. They will remain indefinitely on the permanent record unless the work is completed and a grade assigned as described above. Because University of California regulations require a grade point average of 2.0 for all units attempted in order to graduate, incomplete grades are treated as "F's" when a check for satisfaction of graduation requirements is made. If the student's overall average is at least a 2.0, including the incomplete grades computed as "F's," then the student may graduate. If the incomplete grades computed as "F's" decrease the student's average below a 2.0, then the student may not graduate until enough "I" grades have been made up to bring the average up to a 2.0. This computation in no way affects the grade point average or the appearance of "I" grades on the final permanent record.

Pass/Not Pass

The Pass/Not Pass option is available at UCI to encourage students to enroll in courses outside their major field. Courses graded "Pass" or "Not Pass" are not included in computation of the grade point average which appears on a student's permanent record. However, if a student receives a "Pass" in a class, course and unit credit for the class are received. If a "Not Pass" is received the student receives no credit for the class. Below are listed six regulations concerning the use of the Pass/Not Pass option:

1. On the average only one course (or four units) per quarter may be taken under the Pass/Not Pass option. The total number of Pass/Not Pass courses on a student's record may not exceed the number of quarters a student has been enrolled at UCI. This restriction applies to all courses, including those designated by the Committee on Courses to be offered only for Pass/Not Pass grades, except for courses in Physical Education.
2. A student who earns a grade of "C" (2.0) or better will have a Pass/Not Pass grade recorded as "Pass." Units thus earned will be counted in satisfaction of undergraduate degree requirements. If the student earns a grade of

"D" or "F," the grade will be recorded as a "Not Pass," and no credit will be received for the course. In both cases, the student's grade will not be computed into the grade point average.

3. Courses taken under the Pass/Not Pass option may *not* be used to satisfy specific course requirements of the student's school and major department. However, such courses count toward the 180 quarter units required for graduation and toward meeting the general UCI breadth requirements.
4. Changes to or from the Pass/Not Pass option must be made during the enrollment period. No changes can be made after the first two weeks of a quarter without the approval of the dean of the student's school.
5. No student on academic probation may enroll in a course on the Pass/Not Pass option. (Physical Education courses are excepted.)
6. Graduate students may not use Pass/Not Pass courses to apply toward any degree requirements.

Satisfactory/Unsatisfactory Grades (Graduate Students Only)

Individual study and research, or other individual graduate work undertaken by a graduate student, may be evaluated by means of the grades "S" or "U," with the consent of the department. No credit will be allowed for work graded Unsatisfactory.

In Progress Grades

"IP" is a continuing grade, restricted to sequential courses which extend over two or more quarters, indicating that the final grade for the individual quarters will not be assigned until the last quarter of the sequence is completed. The grade for the final quarter is then assigned for all of the previous quarters of the sequence. No credit is given until the student has completed the entire sequence. "IP" grades may be given only in courses designated by the Academic Senate Committee on Courses for use of this grade. Courses graded "IP" are not included in computations of the student's grade point average and do not contribute to the number of quarter units completed.

Not Reported Grades

An "NR" is recorded on a student's permanent record when the student's name was on the official class roster but the instructor turned in no grade for the student. A student

who receives an "NR" must immediately contact the instructor and arrange for the removal or replacement of the "NR." After one quarter on the record an "NR" becomes an "F" which will remain permanently upon the student's record. Courses graded "NR" are not included in computations of the grade point average and do not contribute to the number of quarter units completed.

Removal of Deficient Grades

Undergraduates may repeat courses only when grades of D, F, or NP were received. Degree credit for courses so repeated will be given only once but the grade assigned at each enrollment shall be permanently recorded. In computing the grade point average of an undergraduate with repeated courses in which a D, F, or NP was received, only the most recently received grades and grade points shall be used for the first 16 units repeated. In case of further repetitions, the grade point average shall be based on all grades assigned and on total units attempted.

Grade Points and Grade Point Average

Grade points are assigned on a four point basis: A, 4 points per unit; B, 3 points per unit; C, 2 points per unit; D, 1 point per unit; F and I, zero points. Plus or minus suffixes modify the above by plus or minus 0.3 grade point per unit.

Each undergraduate course counts one through eight units, and graduate courses range from one to twelve units each (see departmental course descriptions). Grade point average is computed by dividing the total number of grade points earned by the total unit value of courses attempted. P, NP, S, U, NR, IP, and I grades are excluded in computing grade point average.

CREDIT BY EXAMINATION

An enrolled student may obtain credit for many courses by taking a special examination administered by a faculty member who normally teaches that course. Detailed procedures for obtaining credit by examination may be obtained from the office of the dean of the school which offers the course. Approval of any petition for credit by examination must be obtained from the dean of that school *before* the examination can be administered. After the dean has signed the petition, the student must have it validated by paying a \$5 Credit by Examination Fee at the Cashier's Office.

The instructor giving the examination retains the prerogative (1) to decide whether the course can be taken by exam-

ination, (2) to determine the form such an examination may take, and (3) to stipulate whether the grade will be reported as Pass/Not Pass or as A, B, C, D, or F.

A student may take the examination for a particular course only one time. After receiving the grade, the student may accept it or reject it. If the student is not satisfied with the grade received on the examination, the student may choose not to receive credit or a grade. If the student does choose to accept the results of the examination, grades and grade points will be entered on the record in the same manner as those for regular courses of instruction.

INDEPENDENT STUDY: UNDERGRADUATES ONLY

Another class option is available *primarily to upper-division students at UCI*. The option, independent study, allows the student to plan with the instructor a course having a clear relationship to the student's academic program. The plan for the course will include a reading list, a group of assignments, examinations, papers, or similar evidence of intellectual achievement on which academic credit will be based. A description of the course and of its requirements must be approved by the instructor responsible for it and by the department chair or dean. Independent study credit for undergraduates is normally limited to five units per quarter.

FINAL EXAMINATIONS

Final examinations are obligatory in all undergraduate courses except laboratory and studio courses, or their equivalent, as individually determined by the Committee on Courses. Normally each such examination shall be conducted in writing and must be completed by all participants by the announced time shown in the Schedule of Classes for the quarter in question. These examinations may not exceed three hours duration. In laboratory and studio courses, the department concerned may at its option require a final examination subject to prior announcement in the Schedule of Classes for the term.

Final grade reports from professors are due in the Registrar's Office within 48 hours after the final examination.

UNDERGRADUATE SCHOLARSHIP REQUIREMENTS

Course Load Limits

An undergraduate may enroll in as few as 12 units or as many as 20 units. To enroll for more than 20 units or fewer



than 12 units a student must obtain the signature of the student's dean on the Preferred Program Card. Any action to add or drop courses after submission of the Preferred Program Card which will cause a student to be enrolled in more than 20 units or fewer than 12 units requires approval by the student's dean. This approval is certified by the dean's signature on the Add, Drop, or Change of Grading Option Card, as appropriate.

Academic Standing

To remain in good academic standing a student must maintain a grade point average of at least 2.0 and make progress toward the degree at a satisfactory rate.

An undergraduate student is normally subject to academic probation if at the end of any quarter the grade point average for that quarter, or the cumulative grade point average, is less than 2.0.

A student whose grade point average falls below a 1.5 for any quarter, or who after two consecutive quarters on probation has not achieved a cumulative grade point average of 2.0 or a satisfactory rate of progress, is subject to disqualification.

Normal Progress Requirement

Regular undergraduate students will become subject to probation or subject to disqualification from further registration in the University if they fail to make normal progress toward the baccalaureate.

(A) Normal progress for all regular undergraduate students is defined in the following table, in terms of quarter units completed at the end of quarters enrolled.

Quarter	Normal Progress	Subject to Probation	Subject to Disqualification
1	12-15	8-11	≤ 7
2	24-30	16-23	≤ 15
3	36-45	24-35	≤ 23
4	50-60	40-49	≤ 39
5	65-75	56-64	≤ 55
6	80-90	72-79	≤ 71
7	96-105	89-95	≤ 88
8	112-120	106-111	≤ 105
9	128-135	124-127	≤ 123
10	145-150	142-144	≤ 141
11	162-165	160-161	≤ 159
12	180	----	----

- (B) A student who at the end of a given quarter of enrollment has completed no less than a number of units in the range specified in the "Normal Progress" category under (A) is making normal progress. A student who at the end of a given quarter of enrollment has completed a number of units in the range specified in the "Subject to Probation" category under (A) is subject to being placed on probation by the Faculty of that student's school or program or its designated agent. A student who at the end of a given quarter of enrollment has completed no more than a number of units in the range specified in the "Subject to Disqualification" category under (A) is subject to disqualification by the Faculty of that student's school or program or its designated agent.
- (C) Students who have completed two consecutive quarters on academic probation without having achieved at the end of that period at least the normal rate of progress specified under (A) are subject to disqualification.

A student will be allowed to continue on probation only if the record indicates likely achievement of the required scholastic standing within a reasonable time.

- (D) For purposes of calculating "Normal Progress," "Subject to Probation," and "Subject to Disqualification," students admitted to the University with advanced standing will be classified with respect to quarter of enrollment at entrance in accordance with the following table:

Quarter at Entrance	Advanced Standing Quarter Units at Entrance
1	0-14
2	15-29
3	30-44
4	45-59
5	60-74
6	75-89
7	90-104
8	105-119
9	120-134
10	135-149

- (E) Units earned under the following three circumstances are not to be counted toward determination of the quarter at entrance under (D) above: (1) Advanced Placement Examination; (2) College Level Examination;

(3) concurrent enrollment in college courses while in high school.

- (F) The quarter of enrollment at entrance of students (including baccalaureate degree candidates who already hold a baccalaureate degree) seeking admission to the University with 150 or more advanced standing units will be determined by the Faculty offering the curriculum in which such students seek to enroll. This determination will be made consistent with the program required for such students to obtain the desired degree and with University residence requirements.

Probation is not a necessary step before disqualification. If a student becomes subject to disqualification, the complete record of grades and other accomplishments will be carefully reviewed by the responsible faculty authorities of the student's school. If the record indicates little probability that the student will be able to meet the academic standards of the University of California, the student will be disqualified from further enrollment. Each school and program is obliged by Academic Senate regulations to maintain a procedure under which a student may appeal probation and disqualification actions.

In order to transfer from one campus to another in the University of California or from one UCI school to another, a student who has been disqualified or who is on academic probation must obtain the approval of the appropriate faculty, or its designated agent, into whose jurisdiction the student seeks to transfer.

CONCURRENT ENROLLMENT IN UNIVERSITY EXTENSION

If a UCI student wishes to enroll in a University Extension course concurrently with enrollment in regular courses, the entire program of study must be approved in advance by the dean of the student's school.

CREDITS FROM OTHER INSTITUTIONS

Transfer to UCI of credit earned in enrollment at another institution guarantees only credit toward total units. UCI students who wish to enroll in a course at another institution should consult with their academic dean in advance concerning applicability of transferred credits toward meeting specific UCI degree requirements.



Enrollment and Other Procedures

Except where noted, all information applies to both undergraduate and graduate students. Additional information concerning registration and academic policies applying only to graduate students is given under the Graduate Division section.

ENROLLMENT AND PAYMENT OF FEES

A student must complete the following procedure to officially enroll in classes and receive academic credit:

Consult academic advisor and secure approval for enrollment in classes if required; file completed class enrollment and information cards with the Registrar's Office; pay fees at the Cashier's Office (including all outstanding debts).

The Schedule of Classes is provided by the Registrar's Office with registration materials approximately six weeks before the beginning of each quarter. A quarterly calendar of enrollment and fee payment deadlines are included in each issue.

Class Verification and Identification Card

After payment of fees and enrollment in classes each student receives a Class Verification and Identification Card which is evidence that the student is registered at UCI and is entitled to library privileges, student health services, and other University privileges. In addition, the card provides identification for Associated Student functions. If the card is lost, a duplicate may be obtained from the Registrar's Office upon application and payment of \$3 to the Cashier's Office.

Late Enrollment and Payment of Fees

Students who do not pay fees and enroll in classes within the deadline limits, including those who are allowed to apply late, are required to pay a late payment fee of \$10 and a late enrollment fee of \$25. These service fees are assessed to help pay for the additional expense associated with processing late transactions and may not be waived. All fees are due and payable in advance and must be paid in full before official enrollment in classes will be completed. Students are therefore urged to pay fees and enroll within the published deadline dates. Students with financial need

should make advance arrangements with the Financial Aid Office to have funds available when their fees are due. All fees must be paid in advance. The Registrar does not have authority to allow a student to pay fees after the deadline dates, or waive the late fees, except in unusual cases where the University is responsible for the late transaction. A student who is allowed to apply late and, as a result, must pay fees and enroll late, is required to pay late fees.

Change of Class Enrollment

After an official Preferred Program Card has been filed with the Registrar, a student may add or drop courses, change sections of a course, or change the grading option by executing an Add, Drop, or Change of Grading Option Card, available from the student's academic dean's office.

A student may not enroll in more than 20 units (excluding Physical Education) nor fewer than 12 units of course work during a given quarter without the permission of the student's academic dean. Changes to Pass/Not Pass grading must not cause the student to exceed the limitations to Pass/Not Pass enrollment.

During the first six weeks of each quarter, a student may add classes provided approval to add each class is granted by the instructor in charge. To add a class, a student must obtain the instructor's signature of approval on an Add Card and submit the card to the student's academic dean no later than the end of the sixth week of instruction.

To drop a class or change the grading option during the first two weeks of the quarter, a student must obtain the signature of the instructor in charge as evidence of notification on a Drop or Change of Grading Option Card and submit the card to the student's academic dean no later than the end of the second week of instruction.

Students may drop classes from the third through the sixth week of a quarter, inclusive, only with the permission of the instructor in charge. A student wishing to drop a class during this period must obtain the signature of approval from the instructor in charge on a Drop Card and submit the card to the student's academic dean.

After the sixth week of a quarter, students may drop a

course only with the permission of the instructor and the student's academic dean. Permission to drop after the sixth week can be granted only if the student is not failing the course and not subject to disqualification, and only if dropping the course would be to the educational benefit of the student and/or of the class as a whole. To drop a class after the sixth week, a student must execute a Drop Card, obtain the instructor's signature of approval, and submit the card to the student's academic dean for the dean's action.

Every student enrolled in a laboratory course in which equipment is issued is responsible for the equipment when dropping a course and will not be permitted to drop until the equipment is accounted for.

Students are responsible for their official enrollment and must be officially enrolled in each class for which they expect credit. They must officially drop classes they have ceased attending. The student cannot simply discontinue attendance in a class; a Drop Card must be filed or the student will receive an "F" grade in the class. Students are responsible for clarifying their official enrollment within the deadline dates each quarter. Courses may not be added or dropped retroactively.

There is a \$3 service charge for all add, drop, or change transactions *received* in the Registrar's Office after the second week of classes.

LAPSE OF STATUS

A student's status may lapse for the following reasons:

Failure to respond to official notices; failure to settle financial obligations when due or to make satisfactory arrangements with the Business Office; failure to complete the physical examination; or failure to comply with admission conditions.

Each student who becomes subject to "lapse of status action" is given advance notice and ample time to deal with the situation. However, if the student fails to respond, action will be taken without further notice, and the student is entitled to no further services of the University except assistance toward reinstatement. A student who desires to be reinstated must satisfy the conditions which caused the "lapse of status" and pay a \$10 reinstatement fee at the Cashier's Office.

STUDENT RECORDS

A Personal Data Sheet is included in each term's registra-

tion packet which allows students to examine and update their personal data. Furthermore, after the drop and add period each quarter, every student is provided with a record of current term enrollment to insure the accuracy of official enrollment. Students are urged to officially report to the Registrar's Office all changes in personal data and enrollment data. It is extremely important for each student to keep the Registrar's Office currently informed as changes occur to assure that accurate and complete records are maintained.

The University maintains records relating to students for various academic purposes. In addition, records such as employment records and medical records are maintained. The release and disclosure of student records maintained by the University are in large measure governed by State and Federal laws. Guidelines of the University are designed to protect the student's right of privacy as well as to provide reasonable interpretation of applicable law.

A campus committee has been established to interpret the Family Educational Rights and Privacy Act enacted by the federal government in 1974 and Interim University Guidelines adopted thereafter. The Act and Guidelines provide additional safeguards for the confidentiality of student records and broaden the opportunity for student access to their records held by the University. Annually, students will be informed of their rights under the Family Educational Rights and Privacy Act through publication of the text of the Act in the student newspaper. See page 298.

Transcript of Records

The transcript of a student's academic record will be released only upon a signed request of the student authorizing the release. Application for a transcript should be submitted to the Cashier's Office with a check or money order payable to Regents-UC for the exact amount due. The fee for transcripts is \$2 for the first copy and \$1 for each additional copy *ordered at the same time*. All outstanding debts to the University (with the exception of long-term financial aid loans not yet due and payable) must be paid in full before a transcript will be released.

When a student orders a transcript sent to another college, university, or agency, it is extremely important for the student to provide a complete and accurate mailing address to insure delivery to the correct office.

Diplomas

Students are advised by mail when their diplomas are avail-

able, which is about 90 days after the final quarter in which the degrees are awarded. Students may then call in person at the Registrar's Office or authorize the Registrar to deliver their diplomas by certified mail, or registered air mail to foreign countries. There is a service charge of \$2 for certified mail, \$3 for registered air mail, payable to Regents-UC. All outstanding debts due to the University, with the exception of long-term financial aid loans, must be paid in full before a student's diploma will be released.

SPECIAL PROCEDURES

Withdrawal from the University

A student who decides to leave the University during the quarter must complete an official Notice of Withdrawal. The notice, with identification card attached, must be filed, as appropriate, with the Dean of Students, the Dean of the Graduate Division, or the Office of Special Programs. A student who fails to file a Notice of Withdrawal will receive failing grades in all courses and severely jeopardize academic standing at the University.

In extenuating circumstances, such as illness or emergency, the student should notify the appropriate dean as soon as possible in order to initiate withdrawal procedures.

If an undergraduate student has completed a quarter and has not paid fees for the following quarter, a withdrawal form is not necessary. If a student pays fees for the following quarter, and subsequently decides not to attend, or stops payment on the check, an official withdrawal is required. A graduate student who files a Notice of Withdrawal but intends to retain graduate standing should request a leave of absence, which must be approved by the departmental Graduate Advisor and the Dean of the Graduate Division.

See page 48 for information on fee refunds.

Readmission: Undergraduates Only

We strongly urge students to consider the policy below in formulating plans for leaving or returning to UCI. Every

effort will be made to readmit UCI students who were in good academic standing at the time of dropping out and who have filed readmission applications.

Readmission is not automatic. A student must file a readmission application at least eight weeks prior to the quarter in which readmission is desired and pay a \$20 Application Fee at the Cashier's Office.

If a student has been academically disqualified from the University or has left the University while on probation or subject to disqualification, the student must apply for readmission in the manner prescribed above. The application, however, will be forwarded to the dean of the school which the student hopes to enter. If the dean decides that the student is serious about academic life, and/or that the student has displayed capability at another academic institution, the student will most likely be allowed readmission to the University.

Transcripts for work taken at other institutions must be submitted as part of the application. A nonrefundable fee of \$20 is charged for each application for readmission. Remittance by bank draft or money order, payable to Regents-UC must be attached to the application.

Intercampus Transfer: Undergraduates Only

An undergraduate student in good standing can transfer from the UCI campus to another campus of the University of California. To do so, the student should first check with the UCI Registrar to see which of the campuses are accepting transfers and which majors are being encouraged by each campus. The student then obtains an Intercampus Transfer Application form from the UCI Registrar's Office and files the form with the UCI Registrar by the deadline prescribed for the quarter in which the student wishes to transfer. The deadlines are March 1 for fall quarter, September 1 for the winter quarter, and December 1 for the spring quarter. A student may apply for only one campus in any given quarter. A fee of \$20 is required for all Intercampus Transfer Applications filed with the Registrar's Office.



University and Student Affairs

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University and Student Affairs

The Office of the Vice Chancellor – University and Student Affairs has responsibility for a full range of programs and services designed to carry out the University of California's commitment to create an environment fully supportive of an educational endeavor of the highest quality. University and Student Affairs offices provide a mosaic of special programs and services designed to assist students in addressing their academic, social, and personal needs. Interested members of the community are provided opportunities for participation in a variety of University activities through the presentation of nationally prominent lecturers, fine arts productions, and public affairs programs. In support of the on-going development of the Irvine campus, the Office of University and Student Affairs coordinates the establishment of goals and priorities for the acquisition of individual, private foundation, and corporate gifts to UCI.

The basic intention of all the following programs is to aid, interpret, and encourage broad university and public awareness of the unique role which UCI has as an educational resource in Orange County, the State of California, and the nation.

The immediate Office of the Vice Chancellor – University and Student Affairs is concerned with the following functions: planning and policy; legal affairs; allocation of University and Student Affairs resources; personnel programs; student services facilities planning and space allocation; studies, research, and grants; program evaluation; and development of private resources.

Student Affairs

The various Student Affairs offices are primarily student-oriented and accept the challenge of making their services responsive to student concerns, and, where appropriate, of extending them to meet expanding student values. Every university has the obligation to allow students a legitimate voice in the policies of their campus. Students must not only speak out on issues, but also must have an active role in every aspect of the campus with which they are involved. However, this cannot be handled by measures which are expedient or improvised only as issues arise. Our responsibility is to draw students into the decision-making process in such a way that they may also assist in the implementation of decisions and be held accountable for them. This involves finding a full and practical way by which students can assume responsibility through a wide variety of opportunities.

Each quarter every student remits to The Regents of the University of California a \$116 Registration Fee. This fee is appropriated by The Regents to support student services' programs on all of the campuses of the University. As the Chancellor's designee, the Vice Chancellor – University and Student Affairs makes recommendations on the appropriate use of these funds and is accountable for their effective utilization. To aid the Vice Chancellor in these determinations, the Vice Chancellor's Advisory Committee on the Registration Fee, comprised of students, faculty, and staff, was established. The Advisory Committee conducts evaluations of student services' budgets and programs and advises the Vice Chancellor on annual allocations of Registration Fee funds.

Other examples of opportunities for significant student involvement are the Undergraduate Administrative Intern Program and the Public Affairs Intern Program. The Intern Programs provide undergraduate students with a combined academic and experiential approach to the exploration of administration in higher education. The interns are involved in day-to-day administration on a decision-making level. In this capacity they become increasingly aware of the multifaceted position of the administrator and serve as a valuable liaison resource among administrators, faculty, and students.

EDUCATIONAL RELATIONS

The Office of Educational Relations is the central administrative office for the Office of Relations with Schools and Colleges/Educational Opportunity Program, the Office of Financial Aid (see p. 49), the Career Planning and Placement Center (see p. 65), and the Office of Studies and Research. These units comprise an interrelated series of services for students ranging from their first contact with UCI to assistance in planning careers and placement in full-time positions or graduate and professional schools.

The Office of Studies and Research conducts survey research on priority issues for the University and Student Affairs administration, prepares and coordinates proposals for extramural support of new programs, and reviews issues in higher education both regionally and nationally, particularly in the area of student affairs.

The Studies and Research Office also is responsible for monitoring the experience of students at Irvine by surveying their characteristics, attitudes, aspirations, and providing feedback on this data for purposes of planning and evaluating programs administered by University and Student Affairs.

OFFICE OF RELATIONS WITH SCHOOLS AND COLLEGES/EDUCATIONAL OPPORTUNITY PROGRAM

The Office of Relations with Schools and Colleges (ORSC) serves as a liaison between the University of California, Irvine and other educational institutions of the state. Staff members visit secondary schools and community colleges to interpret the policies and programs of the University to school personnel, and conversely, to seek information for the University about educational developments throughout the state. In cooperation with community colleges, ORSC

staff mediate course articulation agreements and undertake other activities which provide assistance in the transfer process. The ORSC staff are available as a resource to schools and to education-oriented groups, and respond to invitations requesting University spokesmen and participation in college advisement programs, classroom presentations, and other similar events at schools and in the community. Staff members also provide information for prospective students, applicants, teachers, parents, and counselors.

On the UC Irvine campus, Relations with Schools and Colleges provides a number of services directly to the prospective UC student. With the goal of enhancing access to the University for qualified California residents, the Office supplies program information, publications, media, and assistance in the application process. ORSC also arranges educational conferences, schedules campus visits and tours, and sponsors a variety of on-campus activities for prospective students and educational groups. The annual University Day held in October, for example, is a program planned for college-bound high school students. Student-led tours for prospective students and their parents and school groups may be scheduled through the Office by calling Campus Tours, (714) 833-5832.

Three major programs within the Office of Relations with Schools and Colleges are committed to the University of California's program of student affirmative action outreach at the undergraduate level. The Educational Opportunity Program for disadvantaged students may provide, according to the student's circumstances, special admissions consideration, financial aid, and academic support through advising and tutoring. The Student Affirmative Action Outreach Program is designed to attract underrepresented minority and disadvantaged students who are regularly eligible for admission as undergraduates to the University of California. Younger students are the focus of the Partnership (Early Outreach) Program, which works with the junior high schools to increase the number of University eligible students from low-income and underrepresented groups. These programs are described below. Inquiries regarding the EOP, the Undergraduate Student Affirmative Action Outreach Program, and the Partnership Program should be directed to the Office of Relations with Schools and Colleges, University of California, Irvine; Irvine, California 92717, (714) 833-5410.

Educational Opportunity Program

The goal of the Educational Opportunity Program (EOP) is to encourage representation of disadvantaged students at

UCI by assisting them in enrolling and succeeding at the University. The kinds of difficulties students encounter in seeking a college education may range from inadequate public school preparation to a lack of funds to support their education. The Educational Opportunity Program is designed to assist students in overcoming obstacles by providing admissions counseling, financial aid, and academic support through advising, tutoring, and learning skills services, as well as counseling on a continuing basis through the Center for Counseling and Special Services. EOP also serves qualified students who meet regular admissions criteria and who would nonetheless benefit from the Program.

A special EOP summer session is designed to assist students admitted to the University under the EOP Special Action Program. Students may be admitted through EOP Special Action only in the fall quarter. Information may be obtained from the Office of Relations with Schools and Colleges/Educational Opportunity Program, (714) 833-5410.

Eligibility

Students from disadvantaged backgrounds are encouraged to apply, particularly persons from ethnic and low-income groups who may not have met traditional admissions requirements but who can offer evidence supporting their ability to achieve at the University level. In those cases where entering the University at this time would not seem appropriate, the EOP staff may recommend a program of study in a community college or elsewhere, in order that the student may qualify for UCI at a later date.

Financial Assistance

Personal financial resources should not be the determining factor in deciding whether or not to attend college. All students admitted to UCI, including EOP students, are eligible for financial assistance on the basis of demonstrated need. Funds can be provided to cover room and board, registration fees, books and supplies, and living expenses when a student or family is unable to meet fully these expenses. Financial aid is comprised of a combination or "package" of grant, loan, scholarship, and/or part-time employment based on the individual circumstances of the applicant. See Financial Aid, page 49.

Admissions

Prospective EOP students must complete the regular UC admission forms and follow all procedures. EOP applicants should take particular care to indicate their interest in EOP by marking the appropriate places provided on the applica-

tion. Applications may be obtained from counseling offices in California high schools and community colleges or the UCI Office of Admissions. In addition to submitting an application for admission and requesting that transcripts of academic records from all prior schools be sent to UCI, the EOP applicant must write a short autobiographical essay focusing on academic potential and goals, and is advised to submit two letters of recommendation (these may be from teachers, counselors, persons in the community, or employers).

Undergraduate Student Affirmative Action Outreach Program

The purpose of the Student Affirmative Action Outreach Program is to attract underrepresented minority and disadvantaged students who are regularly admissible to UCI. Campus representatives visit high schools, community colleges, and community centers to meet with students, parents, teachers, and school officials to discuss the new outreach approach. The program also includes a series of seminars and workshops aimed at orienting students to specific academic disciplines, such as mathematics, physics, computer science, chemistry, biology, and engineering.

Partnership Program

In an attempt to assure that more students from underrepresented groups become eligible for admission to the University, the Partnership (Early Outreach) Program was organized between UCI and selected junior high schools. In the target junior high schools, the Partnership Program aims to encourage greater academic achievement among young students. Students, parents, and teachers are given information sessions at their schools and are advised about appropriate University preparatory course work. Additional advising sessions at UCI provide them with the opportunity to tour UCI facilities.

CAREER PLANNING AND PLACEMENT CENTER

The Career Planning and Placement Center develops and maintains part-time, temporary, summer, Work-Study, and career job listings for students and alumni. It provides timely and up-to-date career information, assists students in the process of career decision making and planning, and provides educational placement services for those seeking teaching, administrative, or counseling positions in education. Students interested in graduate or professional study should consult with their faculty advisors; additional in-



formation is available through the Center. One of the most advanced computer-based career guidance systems available, called the System of Interactive Guidance and Information (SIGI), is housed at the Center. SIGI is fully available for student use on a referral basis and complements the Center's overall program of career guidance.

Career Placement

Career Placement encourages students to start researching their basic interests early in their university careers, so that they can plan more effectively and successfully for the future. Introductory and Job Search Workshops are scheduled throughout each quarter. Introductory Workshops are designed to acquaint lower-division students with the tools basic to career planning, including self-assessment exercises and the Career Information Library. Job Search Workshops discuss such skills as resume preparation and interviewing techniques and provide information about possible career opportunities in business, industry, and government. Representatives from numerous organizations and graduate schools conduct on-campus interviews for graduating seniors, graduate students, and alumni throughout the school year; a quarterly calendar lists the dates when such interviews will be held. Listings of current job opportunities are made available to seniors, graduate students, and alumni, and recorded job information is available on a 24-hour telephone line. The Career Library contains detailed information on graduate and professional schools, literature on specific careers and companies who regularly employ college graduates, and multimedia presentations describing UCI programs and possible career areas stemming from them. Information is also available on tests such as the LSAT and the GRE for professional schools, and tests for the federal and state civil service.

Educational Placement

Educational Placement, in cooperation with the Office of Teacher Education, assists prospective educators in locating and applying for possible teaching jobs. The Center offers a professional placement file service, enabling users to keep all their records and references permanently on file, ready to be sent out on request in support of a job application. Educational Placement also focuses on finding alternative employment for credentialed teachers in educationally related fields such as counseling or administration.

Candidates who have received degrees or credentials from the University of California and who were not registered students in the period beginning one year prior to each

November 1 must pay a fee of \$20.00 per annum for the campus Educational Placement Services.

Other services include the maintenance of a file of directories and catalogues for educational institutions across the country, comprehensive listings of current statewide and national vacancies, and a 24-hour job information telephone line. On-campus interviews with representatives of local school districts are also arranged.

Student Placement

Student Placement assists students in obtaining part-time, summer, and temporary employment both on and off campus. Special job listings also are maintained for students receiving work-study awards. Part-time and temporary employment opportunities are posted on a bulletin board in the Center and are updated daily. Whenever possible, students are assisted in finding employment related to their careers or academic interests.

CENTER FOR COUNSELING AND SPECIAL SERVICES

The Center for Counseling and Special Services recognizes that most students face personal and academic pressures from time to time while they are attending the University. Many problems can be overcome by talking with the professional psychologists and counselors at the Center. The staff members are available to listen to and explore the difficulties, distresses, tensions, or habits which affect a student's life. All discussions are strictly confidential. The Center provides services and programs in four areas: Counseling Services, Consultation and Training Services, Learning Skills Services, and Cross-Cultural Services.

Counseling Services

The Counseling Services are based on the premise that adaptation to University life is often easier if someone is available to discuss stressful situations and personal concerns. Confidential discussions with counselors help students to identify issues and problems, examine values, discover strengths, talents and interests, decide on actions and new directions, and improve self-understanding. Students should feel free to come to the Center, whether seeking help with a major or minor concern. Counseling is also available to couples whenever one member is a student. No appointment is needed.

Consultation and Training Services

Consultation and Training Services are concerned with the

improvement of the communication and helping skills of students, faculty, and staff. Staff psychologists train student group leaders, faculty members, student interns, resident assistants, peer academic advisors, and administrative personnel in communication, listening, leadership, group dynamics, classroom management, teaching, and crisis intervention skills.

Special Services: Learning Skills Services

The Learning Skills Services are designed to provide students with the skills necessary to take full advantage of the many educational opportunities offered at UCI. The wide variety of programs include workshops, seminars, and tutorials in areas ranging from study skills, test taking, test anxiety, and time management, to understanding the psychological forces which affect one's ability to learn.

Special Services: Cross-Cultural Services

Cross-Cultural Services provide specialized counseling and referral services to all UCI students, but are specifically designed to promote Third World student organization activities and encourage various ethnic and cultural events on campus. Student and professional staff participants are recruited from ethnic minority groups with the intention of increasing the availability of ethnic minority resources at UCI. The services provide an opportunity for all members of the University community to experience different cultural perspectives through a wide variety of programs and services.

DEAN OF STUDENTS

The Office of the Dean of Students strives to create learning opportunities that complement students' formal academic experiences and to enhance the sense of community among students. The Office coordinates a variety of student services and programs designed to meet special as well as general campus needs. The Dean of Students is administratively responsible for three operating units: Program Development; Campus Auxiliary Services; and Housing, Transportation, and Food Service.

Program Development

The Program Development Office supports the efforts of students in coordinating extracurricular educational programs of diverse interest and focus which will provide opportunities for students and faculty to share learning experiences on an informal basis. These programs aid students in gaining personal and leadership skills which may help them

become more active participants in campus events and in their own residential communities. The Office is organized into three units: Educational Support, Student Support, and Campus Organizations.

Educational Support Services

A variety of special interest programs designed to complement and supplement the classroom experiences are hosted by this office. Included are Winter and Spring Quarter Orientation; Leadership Training Series; Handicapped Student Services; International Student Services; Postdoctoral Scholar Services; Women's Programs; and Community Volunteer programs. The Office is located in 260 Administration Building, (714) 833-7253.

Student Support Services

This Office emphasizes programs of an orientation and outreach nature. Orientation programs include the Student-Parent Orientation Program (SPOP), a 36-hour live-in experience on campus for new students and their parents; Uni-Prep, a week-long, intensive program in September to help new students develop increased social and intellectual skills; and Irvine Info, a spring information program for UCI applicants. Commuter Student programming, arrangements for Commencement, Fall "Orientation Week," and a new system of support services for the nontraditional student are among the major programs provided. The Office is located in 702 Trailer Complex, (714) 833-7244.

The Veterans Student Services Office offers campus veterans assistance with Veterans Administration benefit certification, tutorial services, orientation, and outreach programs. Veterans are reminded that in order to receive VA educational benefits they must adhere to the standards of satisfactory progress and attendance which are described in the UCI General Catalogue on pages 20-21 and pages 53-57. In addition to those requirements, veterans should also realize that if after one quarter on academic probation the cause for probation has not been removed, the Veterans Student Services Office is required to notify the Veterans Administration. The VA may decide to terminate benefits. The Veterans Student Services Office is also required to notify the Veterans Administration when any veteran student fails, receives no credit, or withdraws from all subjects undertaken when enrolled in two or more subjects, except when there are extenuating circumstances. The Office is located in 807-808 Trailer Complex, (714) 833-6477.

Campus Organization Services

This Office provides program advisement and support for all registered campus organizations, and coordinates the Antrap (a commuter student center), the Cooperative Outdoor Program, the Outdoor Equipment Rental Center, the Mesa Court Outdoors Hall, skill development courses in survival and wilderness activities, and credit/noncredit courses pertaining to environmental studies and issues sponsored by student groups in conjunction with academic units. The Office is located in 106 Gateway Commons, (714) 833-5181.

Campus Auxiliary Services

The Office of Campus Auxiliary Services centralizes many of the steps necessary to make specific physical arrangements for academic, cultural, and social events on campus. The Office, located in 225 Administration Building (714) 833-6963, is organized into four units which provide a variety of services to students, faculty, staff, and community members: Central Campus Calendar, Summer Conference Office, Audio-Visual Services, and Child Care.

Central Campus Calendar

Central Campus Calendar schedules and coordinates events and activities which take place on campus. The Office provides information and advice to program planners, interprets University policies and procedures, and advises those planning programs on the most economical, efficient way to use campus support services. Selection and reservations of facilities, orders for staff and equipment support, and cost estimates are processed through the office. The Calendar Office schedules academic, Extension, and Summer Session classrooms, provides centralized billing for special events, and serves the campus as a central information center by maintaining the master calendar of campus activities.

Summer Conference Office

The Summer Conference Office serves as a centralized coordination point for live-in conferences, workshops, and seminars held at UCI. The Conference Office provides information, program and budget planning, and room and board accommodations. Also, it can arrange recreational activities and tours of the area for faculty, students, and staff, as well as non-University organizations, educational institutions, and nonprofit groups wishing to utilize UCI facilities for approved live-in conferences.

Audio-Visual Office

The Audio-Visual Office provides staff assistance and audio-

visual equipment on a recharge basis for students, faculty, staff, and non-University organizations in the development and presentation of programs and special events. The staff also operate the audio-visual systems for regularly scheduled academic classes in Science Lecture Hall and Social Science Hall. Consultation and support on effective media use, equipment, or any other aspect of audio-visual usage are available to the campus as a whole.

Child Care

Facilities and programs offering full-time and part-time day care for children ages two-and-one-half to five are available to UCI students, staff, and faculty. The educational programs are the Children's Center, the Verano Pre-School, and a special afternoon program designed to meet the needs of the four year old before enrolling in kindergarten.

Housing, Transportation, and Food Service

The Housing, Transportation, and Food Service Office provides supervision of all on-campus housing and necessary support services. Administratively the services and programs offered through this Office are divided into three sections: Housing Services; Business and Food Service; and Residential Learning.

Housing Services

This Office coordinates application procedures and contracts with campus residents; assists students seeking off-campus housing; provides room, apartment, roommate, and realtor listings; provides courtesy telephone and maps; and advises on landlord-tenant rights.

On-campus residences are available for 1,550 single undergraduate students in Mesa Court and Middle Earth. Each residence accommodates 50 or 60 students and a resident assistant, providing the opportunity for small-group living, self-government, and leadership experience. The residences are divided into suites of four or five double rooms, with living room and bath; each residence also contains a lounge and recreation and study rooms. A limited number of single rooms are also available in each residence. Rooms are furnished except for bedspreads, blankets, and study lamps. Both Mesa Court and Middle Earth have complete food service and dining commons for their residents. The halls are, however, closed during the Christmas and spring recesses.

Each hall tends to have distinctive characteristics and often focuses on a specific interest or life-style. Examples include



halls devoted to fine arts, the humanities, languages, the outdoors, or crafts.

Students must indicate their interest in housing by appropriately marking Part B of the UC Undergraduate Application for Admission in order to receive a residence hall application. Due to the large demand for housing, students wishing to live on campus should apply for admission in early November.

The University also has 562 one-, two-, and three-bedroom apartments in Verano Place for married and graduate students. Over half of the apartments are furnished, and all have carpeting, draperies, stoves, and refrigerators. They are attractive and considerably lower in rent than comparable units in the local communities. Students may apply to live in Verano Place at any time by requesting an application from the Housing Office. Application should be made at least six months in advance of the date the student wishes to move in.

Business and Food Service

The physical and fiscal management for all housing and food services is performed by this office, including the maintenance of the various locations for food services on campus. Gateway Commons, located across from the Library, has both restaurant and cafeteria service. The "North Forty" snack bar is located adjacent to the Cross-Cultural Center. Student Center I, next to the Science Lecture Hall, houses a snack bar, and the mobile snack bar, the Zot Shop, serves hot and cold fast food items. Vending machines are located in and around the campus buildings.

Residential Learning

The Student Programs Offices at Mesa Court and Middle Earth have the significant responsibility of providing student residents with an environment conducive to their intellectual, social, and personal growth. The housing staffs work closely with students to create opportunities for educational exploration and ways of developing interpersonal skills. Academically oriented residential learning programs include Social Science Center, Social Science Hall, Humanities House, Social Ecology Center, Foreign Language Programs, and the Center for the Arts. The Outdoors and Photography Halls are examples of special interest hall programs. The Student Programs Offices also supervise and train resident assistants, advise the residential student government, and coordinate information and skill development workshops.

STUDENT HEALTH SERVICE

All registered students are eligible for Student Health Service benefits under the UCI program. Student Health facilities include a complete outpatient clinic, staffed by physicians and nurses, supported by an x-ray and clinical laboratory. General medical clinics are held 8:00 a.m. to 5:00 p.m. every day during the week. Specialty clinics are held at variously scheduled times by appointment and include Dermatology, Gynecology, Orthopedics, Mental Health, Birth Control, and Minor Surgery. Emergency service is provided after regular hours and on weekends. An infirmary provides inpatient care for students who need bed care.

In addition to the campus facility, there is a basic insurance program which provides limited coverage for emergency care, surgery, and hospitalization when such care is required but not available at the Student Health Service. Each fully registered student at UCI will automatically have this basic Health and Accident Insurance plan in effect and is required to have a current medical history and physical examination on file at the Student Health Service. The Student Health Service has more detailed information about this insurance plan. Students should check with the Student Health Service for information on the benefits and care under the insurance plan.

Professional counseling and help for emotional problems are available through the Mental Health Division of the Student Health Services. Psychiatric and psychological services, weight control clinics, and headache and biofeedback relaxation training are available.

Student Health coverage provides as many services as possible without additional charge; however, some services are available only on a fee-for-service basis. Some of the services available at moderate charges are: immunizations, allergy desensitization injections, prescriptions from the Student Health Pharmacy, dental services including minor surgery, elective laboratory tests, and time permitting, physical examinations for employment, insurance, or a marriage license. Current fee schedules are available at the Student Health Center and from time to time are published in campus periodicals.

Student Health coverage extends from the first day of the quarter to but not including the first day of the following quarter but begins only after the student has paid the full Registration Fee and has been issued the Class Verification and Identification Card. There is an exception for spring quarter coverage which extends only to the last day of that quarter.

The Student Health Service encourages preventive medicine. It supplements but does not supplant the family physician. Full and mutual cooperation between the Student Health Service and the family physician is encouraged.

Optional additional insurance for students, spouses, and children is available at the Student Health Service. Optional insurance coverage also is available for the summer or one unregistered quarter each year. Enrollment in this plan is limited to a short time at the beginning of each quarter. Stop at Student Health for more information and application forms during the first week of each quarter to assure coverage.

Medical and Physical Examinations

All new students are required to have a complete physical examination within 90 days prior to the first day of the quarter. The examination should be performed by the student's own physician. If this is impractical, the examination can be obtained at the Student Health Service for a moderate charge. Please call for an appointment.

Students returning to UCI after an absence of two or more quarters are required to have a health clearance by the Student Health Service. Students returning after participation in the Education Abroad Program must comply with this requirement upon their return to UCI.

STUDENT CONDUCT AND DISCIPLINE

In order to make the administration of campus activities coherent and consistent, the Office of the Vice Chancellor – University and Student Affairs will provide the student with a handbook setting forth the standards of conduct expected of UCI students. This booklet, "Policies Applying to Campus Activities, Organizations, and Students," gives the rules concerning conduct and related matters, as established by the policies of The Regents and President of the University, as well as campus regulations. Students enrolling in the University are expected to assume an obligation to conduct themselves in a manner compatible with the University's function as an educational institution. The booklet is a reinforcement of that assumption.

ASSOCIATED STUDENTS

The Associated Students of the University of California, Irvine (ASUCI), with offices located on the first floor of Gateway Commons, is composed of all registered students at UC Irvine, whose \$9.00 per quarter student fee allows this non-profit organization to provide leadership, representation, and academic and social services.

Services

ASUCI operates numerous student services on campus. The twice-weekly *New University* newspaper and KUCI (89.9 FM) radio provide campus media wholly funded and managed by students. For the 1976-77 academic year the Orange County Transit District bus service allowed students to travel almost anywhere in Orange County seven days a week by simply showing the bus driver their UCI student identification cards. The Experimental College features unlimited extracurricular courses, ranging from ceramics to disco dancing. These noncredit innovative classes are taught by student and faculty volunteers. The Women's Center offers both women and men the opportunity for sexual consciousness-raising in an educational context. The College Legal Clinic provides free legal assistance to students on almost all matters. The ASUCI Travel Service offers charter information, booking services, and student travel identification. Enhancing the quality of our environment is the long-range goal of the ASUCI Recycling Center. The ASUCI Information Desk, located just inside the entrance to ASUCI has knowledgeable receptionists to answer questions and provide directions.

The ASUCI Ticket Office, open from 9:00 a.m. to 4:30 p.m. Monday through Friday, dispenses several business and commercial services. Tickets for on-campus and off-campus (Mutual Agency) events are available, with those for ASUCI programs often priced nominally or free to students. The Ticket Office also handles check-cashing, distributes group plan purchasing cards (for stereos, tires, etc.), and operates the Discount Record and Tape Service.

ASUCI entertainment services offer all students varying diversions for their leisure hours. Noon concerts are held weekly in Gateway Plaza. Major concerts occur in Crawford Hall at least twice a quarter, and popular films are shown on weekends for a dollar. Speakers appear periodically under ASUCI's sponsorship, with lectures covering politics, economics, humor, and humanism. On weekends one can choose the mellow, relaxed atmosphere of the Patogh (pah-toe) Coffee House. Each spring Wayzgoose, a medieval fair, is held in Campus Park. These programs are operated by executive commissions, which all students are encouraged to join. The UCI Pep Band, partially funded by ASUCI, provides support for our athletic teams and University events.

Organization

The five executive officers of ASUCI are elected for one-year terms by the student body each spring. Their general

task is the setting of goals and policy making to achieve ASUCI's primary goal, a University wholly responsive to student needs and desires. The President handles University-wide affairs, instigates office and budgetary efficiency, and provides focal spokespersonship for the Associated Students in policy dealings with the administration. The Executive Vice President chairs the legislative Council, sits on the Registration Fee Advisory Committee, and supervises the Elections Commissioner. The Vice President for Academic Services is liaison to the Academic Senate and coordinates student input in each school. The Vice President for Administration supervises the student course evaluation booklet and directs the Student Recommended Faculty Program (SRFP) through which students nominate visiting lecturers. The Vice President for Student Services chairs the Communications Board, investigates new services, evaluates current programs, and coordinates ASUCI entertainment and publicity. The executive officers are aided by appointed commissioners who deal with Women's Affairs, the Student Lobby Annex, Housing, Innovative Projects, and more.

ASUCI policy and budgetary decisions are promulgated by the Council, which consists of the officers, representatives of each school, and students elected "at-large." Each councilperson sits on at least one subcommittee of the Council. Council elections are held in fall and spring with ten (or half) Council seats filled in each election.

Representation

The nine UC campus student bodies are linked together by the Student Body Presidents Council (SBPC), on which the ASUCI President serves. The SBPC carries out many activities, including advisement to the Board of Regents and selection of the student Regent, appointment of students to statewide University committees, and direction of the UC Student Lobby through which student interests are promoted in Sacramento and Berkeley (University Hall).

On the Irvine campus, students are encouraged to participate in and are appointed to serve on the Chancellor's Advisory, ad hoc Academic Senate, and campus administrative committees.

Involvement

ASUCI's primary goal is to further the control by students over their own curricula, funds, administration, and student life. All students concerned about academics, services, representation, or entertainment can reach their Council representative or the executive officers at ASUCI, Gateway Commons, (714) 833-5547.

University Affairs

University Affairs provides numerous opportunities for community involvement in the UCI campus. Through a wide variety of lectures, conferences, artistic events, and public affairs programs, the University contributes to the intellectual and cultural life of the community. The Office of Development fosters continuing programs and activities which encourage community participation in UCI affiliate organizations including the UCI Foundation, the Chancellor's Club, and the UCI Industrial Associates. The affiliate organizations, coordinated by the Office of Development, foster private support for UCI to strengthen its efforts to advance knowledge, scientific research, scholarly activities, and the arts.

COMMITTEE ON LECTURES, COMMITTEE FOR ARTS, AND PUBLIC AFFAIRS PROGRAMS

Lectures and arts programs for the campus and surrounding communities are designed to complement the classroom experience of students, provide programs of general interest to the public, and stimulate lively campus and community interaction through cultural, social, and political discussion. The Committee on Lectures arranges for speakers of national and international stature to visit the campus. The Committee for Arts schedules concerts, theatre and dance productions, and art exhibits of major significance. Public affairs programs address timely issues through lectures, forums, conferences, and symposia in cooperation with

University Extension. Program information can be obtained by calling (714) 833-5588.

OFFICE OF DEVELOPMENT

The Office of Development seeks private resources from alumni and friends of UCI to supplement the public funds which support the University of California, Irvine. The additional support is vital to UCI's continued commitment to excellence in research and scholarship, teaching, and public service. Programs coordinated through the Office of Development encourage friends of the University to participate in UCI's activities and to express their interest in the campus through membership in the active affiliate and support groups. Among these are the UCI Foundation, Chancellor's Club, Industrial Associates, Town and Gown, Big I Boosters, Friends of UCI, Friends of the Library, Friends of Sailing and Crew, the Parents Organization, and the UCI Medical Faculty Wives.

The UCI Foundation, a nonprofit corporation organized for the purpose of encouraging voluntary community support for the University, serves as an umbrella organization for affiliate and support groups. The Foundation is governed by a Board of Directors comprised of community and campus representatives. The UCI Foundation and the Office of Development are prepared to work with individuals, foundations, and corporations in tailoring programs that will provide supplementary funding for the campus. The Office of Development is located on the sixth floor of the Administration Building, (714) 833-6424; letters or calls of inquiry are most welcome.



Schools and Departments

UC IRVIN - 1977-1978

School of Biological Sciences

Howard A. Schneiderman Dean

The School of Biological Sciences reflects new concepts of biology in both its curriculum and its research programs. The faculty is dedicated to providing students with the opportunity to avail themselves of the principles and ever-increasing knowledge of biology. The curriculum is designed to meet present and future educational needs of majors and nonmajors. In keeping with the responsibilities of the University, the School encourages vigorous faculty and student research programs. It strongly believes that excellence in research is essential for effective, enthusiastic, and up-to-date teaching.

In addition to the regular University requirements for admission, students interested in the biological sciences should include in their high school curriculum intermediate algebra, trigonometry, biology, and especially chemistry and physics, which are now an integral part of most contemporary biological work.

The undergraduate program of the School serves both as a preprofessional major for students planning careers in the biological and biomedical sciences and as a liberal arts major for an increasing number of students who seek a scientific education. The program is designed to provide a broad academic base suitable for many careers. Graduates have found their way into a number of professions including biological and biomedical research, teaching, the health sciences, environmental management, marine technology, agriculture, law, and other applied fields. It is a rigorous and rewarding program which requires a serious commitment from its students. It can also help students discover their capabilities.

The School offers majors and nonmajors the opportunity to study man and the environment, the mechanisms of development, the nature of learning and memory, the mechanism of gene action, and other central problems of contemporary biology. The biological sciences are presented as an integrated area of study through the Biological Sciences Core, a seven-quarter sequence of lectures and laboratories developing the major concepts of modern biology. Satellite courses expand upon and intensify areas covered in the Core and provide students with the opportunity to specialize in a particular area of the biological sciences. Introductory courses for nonmajors are designed to make the biological sciences meaningful and interesting and to inform intelligent citizens of biological phenomena that affect their daily lives. Graduate courses are offered in all the departments.

Students who are interested in a career in administration and who have completed all of the course requirements for a degree in the biological sciences may apply to the Graduate School of Administration for their 3-2 Program. During the senior year, students will take courses in administration which will count toward the 180 elective units needed to receive a Bachelor's degree. Upon successful completion of the required courses and units, usually at the conclusion of the first year in the graduate program, the Bachelor of Science degree in the Biological Sciences will be awarded. An M.S. degree in Administration will be awarded after successful completion of course requirements at the end of the fifth year.

Every undergraduate student in the School of Biological Sciences has the opportunity to pursue independent research in a professor's laboratory as an apprentice scientist.

Under the guidance of a senior scientist, the student is able to experience the challenge and excitement of the world of science and to develop new scientific skills. This activity may commence as early as the sophomore year or, in the case of exceptional students, earlier. The success of our program can be measured in terms of the number of undergraduate research papers which are accepted by scientific journals and also published in our "Journal of Undergraduate Research in the Biological Sciences."

Special research resources include: the Museum of Systematic Biology, a teaching and research facility which presently contains material on local populations of plants, invertebrates, and vertebrates; the Center for Pathobiology, devoted to analyzing normal and pathological development of insects and other invertebrates by genetic and biochemical techniques; the Irvine Arboretum, a botanic garden facility, envisaging the treatment of the whole campus under scientific management; the San Joaquin Freshwater Marsh Reserve, which supports controlled marsh biota; and the UCI Ecology Preserve, which includes coastal hills on the campus, once under heavy grazing, but now returning to a more natural state. It is important to note that the School has access to the College of Medicine on our campus, thereby providing an opportunity for the sharing of both teaching and research activities.

In addition to the above research opportunities, there are freshman, sophomore, and junior seminars which enable students to meet in small groups with individual professors. Also, through the education motivation and tutoring programs, students can immediately put to practice skills they have learned in their biology training.

The School of Biological Sciences welcomes student participation in all of its activities. An exciting and integral part of the School is the Biological Sciences Student Association, an autonomous student group which provides additional liaison among administration, faculty, and students. Some of its activities include interaction of students and faculty in academic and social functions, evaluation of faculty and courses, nomination of Nobel Laureates as visiting lecturers, initiation and implementation of new courses, motivation programs for elementary and high school disadvantaged students, and conservation awareness programs. In addition, a course on preparing for professional school examinations has been implemented. The Chicanos for Creative Medicine and the Black Students in Science Organization have been organized for all interested students. Full information on

student organizations is available in the Biological Sciences Student Affairs Office, 844 Engineering.

Advisors and Advising Systems

Every undergraduate student in the School of Biological Sciences is responsible for selecting, with the assistance of a faculty advisor, a program of study consistent with the scholarship and degree regulations of the Irvine Division of the Academic Senate. The Biological Sciences Student Affairs Office coordinates the advising program and provides special services particularly in the area of preprofessional counseling. Peer advising is an integral part of our advising program. All freshmen will be enrolled in small group freshman seminars (Biological Sciences 2). All other new students will be enrolled in special sections of Biological Sciences 190. The professor conducting the seminar will be the student's faculty advisor. Upper-division peer advisors will be actively involved in these seminars.

Research Enrichment Program

The REP is open to highly qualified freshmen and sophomores who are planning a career in either health or life science research. The program offers the students special seminars, training in general biological laboratory techniques, and the opportunity to conduct original research and discuss their research with their peers and research advisors. Invitation into the program will be based on overall academic record and an interview.

Degrees

Biological Sciences B.S., M.A.T., M.S., Ph.D. Opportunities are available at the graduate level to specialize in Developmental and Cell Biology, Ecology and Evolutionary Biology, Molecular Biology and Biochemistry, Psychology, Medical Microbiology, and Physiology.

Honors

Of the graduating seniors, approximately 12% may receive honors: 1% *summa cum laude*, 3% *magna cum laude*, and 8% *cum laude*. The selection for these awards is based on rank-ordered grade point averages.

The Biological Sciences Scholastic Honor Society is composed of students who graduate with an overall grade point average of 3.5 or better and carry 12 or more graded units with a grade point average of 3.5 per quarter for a minimum of six quarters. Their names will be inscribed on a permanent plaque in the Biological Sciences Student Affairs Office. Special Dean's Honors may also be awarded to grad-

uating seniors who have distinguished themselves by their service to the School, the University, or their community.

In addition to the above honors, students interested in research have an opportunity to work towards Honors in Research in the biological sciences. In this program students pursue research in Biological Sciences 199, culminating in their senior year with a presentation of original research to the faculty and their peers. With successful completion of this program the students are awarded seals indicating they have received honors in the biological sciences.

A Biological Sciences Honors Convocation is held annually during the spring, at which time several honors and awards are presented to the recipients. The Edward A. Steinhaus Memorial Award is given to an outstanding graduate teaching assistant chosen by a committee composed of undergraduate students, faculty members, representatives from the administration, and Mrs. Steinhaus. The Jayne Unzelman Scholarship is presented to an undergraduate student who has shown academic excellence and been of service to the School of Biological Sciences and/or the University, and to the community. The Laurence J. Mehlman Prize is awarded to an undergraduate student in the School of Biological Sciences who has demonstrated outstanding achievement in both scholarship and in service to the School.

A quarterly Dean's List is composed of students who have received a 3.5 grade point average while carrying a minimum of 12 graded units.

Requirements for the Bachelor of Science Degree
University Requirements: See page 20.

School Requirements

Biological Sciences Core Curriculum (101A-B-C-D-E-F-G, 101LA-B-C-D-E-F); minimum of three satellite courses; Chemistry 1, 2, 3, 4, 5, and 2L, 3L, 4L, 5L; Mathematics 2A-B-C or 2A-B and one quarter statistics; Physics 3A-B-C, 3LA-B-C or 5A-B-C, 5LA-B-C; and Humanities 1A-B-C or English 28A-B-C plus an approved series of three interrelated courses in some humanistic area. One set from the following sets of courses may be taken along with English 28A-B-C to satisfy the Humanities requirement: 1) Comparative Literature 50A-B-C; 2) Philosophy 20A-B-C; 3) History 29A-B-C; 4) any three language courses in ascending order, or any three literature courses in one language, or

any three literature courses in translation in one area: any of the above to be selected from German; Russian; French and Italian; Spanish and Portuguese; or Classics; 5) three or four interdepartmental series of interrelated courses, which may vary from year to year. Students may check in the Biological Sciences Student Affairs Office, 844 Engineering, for further clarification.

Students must have a 2.0 cumulative grade point average in the Biological Sciences Core (Biological Sciences 101A-B-C-D-E-F-G, 101LA-B-C-D-E-F) and three satellite courses.

No student may enter as a double major, but students interested in other areas may possibly become double majors after the first quarter, if the second school or program approves. A strong academic performance in the second area is requisite for acceptance as a double major.

Transfer students who have completed one year of acceptable college level English composition and literature and one year of history, philosophy, literature, or a foreign language are exempted from the Humanities requirement. Only calculus-based physics will be acceptable for a degree in the Biological Sciences for students who were freshmen at any university or college in fall, 1975, or thereafter.

Planning a Program of Study

Since biological sciences courses are built upon a base of the physical sciences, it is important for students to take their required physical sciences early.

Freshmen will normally take eight units of the Humanities requirement, Chemistry 1, and a freshman seminar (Biological Sciences 2) during the fall quarter. Depending on academic progress, additional courses may possibly be added in the winter and spring quarters.

Sophomores continue with Chemistry 4, 4L and 5, 5L, begin the Biological Sciences Core, and complete the Humanities requirement if they have not taken it during their freshman year. Sophomores often begin taking courses in other schools to meet the UCI breadth requirement.

During their junior year, most majors complete their Biological Sciences Core and take physics. Juniors complete their breadth requirements and often become involved in the satellite course requirements. Since most satellites are based upon information contained in the Core, it is usually preferable for students to have completed most of the Core before taking the satellites.

Finally, during their senior year, students may become involved in an area of specialization within the School.

A main facet of the program in biological sciences is research. Many of our undergraduate students participate in research through our 199 program and through our Research Enrichment Program. Interested students should investigate the possibilities for research early, in order to obtain a great deal of research experience, if they so desire, before they graduate. Although we do not require training in a foreign language, some areas of research demand that students possess language skills. Students are, therefore, encouraged to discuss foreign language needs with their advisors to see if such training is important for their own careers. Advising for research careers in the biological sciences is best accomplished by students working together with their faculty advisors. Students who desire careers in research are urged to begin 199 research training as soon as possible.

Many of our students desire a career related to their education in the biological sciences. Students can go into medicine, dentistry, optometry, podiatry, veterinary medicine, and related medical fields; into teaching; and into research in the biological sciences. In properly preparing for such careers, planning is essential early in a student's education. Students interested in certain areas of the health sciences (e.g., physical therapy, nursing) may receive some of their prerequisites at Irvine but may find it advisable to enroll at an institution which offers degrees in these areas.

Leaders in dental, medical, and veterinary education recommend that students preparing to seek admission to their schools plan to obtain a bachelor's degree. Rather than requiring specific courses, many dental and medical schools now prefer that their students come to them with the type of basic training in the biological sciences (with prerequisites in physical sciences, social sciences, and humanities) offered at Irvine.

Students desiring to enter the health sciences should have their programs checked in the Biological Sciences Student Affairs Office, 844 Engineering. They should also check deadlines for taking the New Medical College Admission Test or other required tests which should be taken in the spring of the junior year.

Electives

Students interested in the health sciences should choose

electives in the social sciences, possibly a foreign language, quantitative analysis, physical chemistry, or other specific courses required or recommended by graduate schools. Students planning a career in elementary or secondary teaching may choose electives among education courses in their junior and senior years.

UCI Breadth Requirement

The UCI breadth requirement is satisfied by taking 24 units in a school outside the student's major, an additional 12 units in a second school, and 12 more units in a third school. Biological Sciences majors automatically fulfill 24 units by required courses in the physical sciences and another 12 units are more than satisfied by courses required in the humanities. Students, therefore, must take the additional 12 units in another school on the campus; for example:

Fine Arts: History of Art 40A-B-C, Music 20, or any 12 units of Fine Arts

Social Sciences: Economics 4A, Psychology 7, and a third course in Social Science

By petition only, Comparative Culture, Information and Computer Science, or Social Ecology courses may be used to satisfy the breadth requirement.

Marine Ecology Super Course

For the winter quarter of even years, Biological Sciences 181 (Applied Marine Ecology) and 182 (Applied Marine Productivity), or a similar grouping, will be combined into a Marine Ecology Super Course. These courses, with a Biological Sciences 199 research course, will constitute a student's entire winter quarter curriculum.

Terrestrial Ecology Super Course

For the spring quarter of odd years, Biological Sciences 167 (Field Ecology), 172 (Physiological Plant Ecology), and 173 (Physiological Animal Ecology), or a similar grouping, will be combined into a Terrestrial Ecology Super Course. These courses, with a Biological Sciences 199 research course, will constitute a student's entire spring quarter curriculum.

Sample Program

	Freshman ^a	Sophomore
Fall	Chem. 1 Human. 1A ^b Bio. 2 (Fr. Sem.)	Chem. 4, 4L Bio. 101A, LA Math 2A Elective ^c
Winter	Chem. 2, 2L Human. 1B	Chem. 5, 5L Bio. 101B, LB Math 2B Elective
Spring	Chem. 3, 3L Human. 1C	Bio. 101C, LC Math 2C or 7 Elective Elective
	Junior	Senior
Fall	Bio. 101D, LD Physics 3A, LA ^d Bio. satellite ^c Elective	Bio. 101G Bio. satellite Research Elective
Winter	Bio. 101E, LE Physics 3B, LB Bio. satellite Elective	Research Electives
Spring	Bio. 101F, LF Physics 3C, LC Bio. satellite Elective	Research Electives

^aExceptionally qualified students with a strong interest in the physical sciences should plan to take calculus in their freshman year and defer half the Humanities requirement to their sophomore year.

^bStudents may replace Humanities 1A-B-C with English 28A-B-C plus an approved series of courses in humanities. (See School Requirements.) Students will normally complete the Humanities requirement in their freshman year. Students who are required to satisfy Subject A may find it necessary to defer English 28A-B-C until completion of the Subject A requirement.

^cElectives should be chosen with the following purposes in mind: UCI breadth requirements; students' own breadth; preprofessional training.

^dPhysics 3A-B-C is the course for nonmajors and is fully acceptable for a degree in the Biological Sciences. Physics 5A-B-C, which begins

GRADUATE PROGRAM

The School of Biological Sciences offers graduate study in a wide variety of fields ranging across the spectrum of the biological sciences. The four Departments of the School of Biological Sciences (Developmental and Cell Biology, Ecology and Evolutionary Biology, Molecular Biology and Biochemistry, and Psychobiology) and three Departments of the College of Medicine (Biological Chemistry, Medical Microbiology, and Physiology) cooperate in the conduct of a unified graduate program, administered by the School of Biological Sciences. The organization of the Departments encourages an interdisciplinary approach to scientific problems, especially at the graduate level.

All programs of study, regardless of emphasis, lead to the degrees of Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) in the Biological Sciences. At the present time, applications for the M.A.T. are not being accepted. Each Department has a graduate advisor whom students may consult in regard to the technical details of their individual programs.

Applications for admission to graduate study are evaluated both by the Graduate Division and by the School or the Department to which the student has applied on the basis of letters of recommendation, Graduate Record Examination scores, grades, and other qualifications of the applicant. Candidates for graduate admission are urged to consult the Department(s) whose faculty and expertise best fit their interests.

Some faculty are members of an interdisciplinary biophysics and biophysical chemistry group. These faculty are from the Department of Chemistry in the School of Physical Sciences; the Departments of Developmental and Cell Biology and Molecular Biology and Biochemistry in the School of Biological Sciences; and the Department of Physiology in the College of Medicine. This program provides an opportunity for interaction among graduate students and faculty who share common interests in biophysics and biophysical chemistry. Participating graduate students pursue a degree in the department best suited to their own back-

in the winter quarter, better prepares a student to take Physical Chemistry 130A-B-C or 131A-B-C and for some graduate programs.

^eIn addition to our listed biological sciences satellite courses, Engineering 121 and Chemistry 130A-B-C or 131A-B-C are counted as satellites.

ground and research interests. A program of seminars brings the group together monthly to discuss research problems of mutual interest, and a regular series of interdisciplinary courses is offered by the participating faculty to provide formal instruction in areas encompassed by biophysics and biophysical chemistry.

Master of Science and Doctor of Philosophy in the Biological Sciences

While both the Master of Science and Doctor of Philosophy programs are offered, emphasis at the graduate level is on the Ph.D. programs. Most training takes place within one of the departments, although full facilities and curricular offerings are available to all graduate students in all departments of the biological sciences. Interdisciplinary study and research are encouraged.

Students are expected to maintain a B average at all times, attain the Master's degree in two years, and attain the Ph.D. in four years. A Master's degree, however, is not a prerequisite for the Ph.D. degree.

Each new student is assigned a faculty member as a temporary advisor. During the first part of the initial year of graduate work, the student plans an academic program in consultation with the graduate advisor or a small committee. Faculty advisors are changed if the specific interests of the student change. Students are encouraged to consult with other faculty members with regard to their research and academic interests.

During their graduate training all students will serve some time as teacher apprentices under the direction of advanced teaching assistants and faculty. Advanced graduate students may work closely with faculty in the planning and execution of the teaching program. The amount and exact nature of the teaching experience varies with the department.

Master of Science

Plan I: Thesis Plan — The student completes seven upper-division or graduate courses including a minimum of five nonresearch courses. The student then presents a thesis based upon research done while in the School.

Plan II: Comprehensive Examination Plan — The student completes a minimum of nine upper-division and graduate courses. At least six must be graduate courses (numbered 200-299) in the student's field of specialization. This program is terminated with a comprehensive final examination.

Doctor of Philosophy

First Level of Competence — The student attains this level by completing oral or written examinations at the discretion of the department.

Second Level of Competence — This level is attained by passing an examination dealing with the student's particular interests. A committee for the purpose of administering this examination is appointed by the Dean of the Graduate Division.

Once this examination is completed, the student is advanced to candidacy for the degree and is considered to have formally begun dissertation research. The student submits a dissertation on this research and defends it at an oral examination during the final year of graduate study.

SCHOOL OF BIOLOGICAL SCIENCES FACULTY

- Howard A. Schneiderman, Ph.D. Harvard University, *Dean of the School of Biological Sciences, Director of the Center for Pathobiology, and Professor of Biological Sciences*
- Daniel L. Wulff, Ph.D. California Institute of Technology, *Associate Dean of the School of Biological Sciences and Professor of Biochemistry*
- Joseph Arditti, Ph.D. University of Southern California, *Associate Professor of Biological Sciences*
- Stuart M. Arfin, Ph.D. Yeshiva University, Albert Einstein College of Medicine, *Associate Professor of Biochemistry*
- Edward R. Arquilla, M.D., Ph.D. Western Reserve University, *Chairman of the Department of Pathology and Professor of Pathology*
- Peter R. Atsatt, Ph.D. University of California, Los Angeles, *Acting Chairman of the Department of Ecology and Evolutionary Biology and Associate Professor of Biological Sciences (on leave F, W)*
- Kenneth M. Baldwin, Ph.D. University of Iowa, *Assistant Professor of Physiology*
- Ernest A. Ball, Ph.D. University of California, Berkeley, *Emeritus Professor of Biological Sciences*
- Albert F. Bennett, Ph.D. University of Michigan, *Assistant Professor of Biological Sciences*
- Michael W. Berns, Ph.D. Cornell University, *Chairman of the Department of Developmental and Cell Biology and Professor of Biological Sciences*
- Hans R. Bode, Ph.D. Yale University, *Associate Professor of Biological Sciences (on leave)*

- Peter J. Bryant, Ph.D. University of Sussex, *Associate Professor of Biological Sciences*
- Susan V. Bryant, Ph.D. University of London, *Associate Professor of Biological Sciences*
- Alfred A. Buerger, Ph.D. Cornell University, *Assistant Professor of Physical Medicine & Rehabilitation (Neurophysiology) and Physiology*
- Richard D. Campbell, Ph.D. The Rockefeller University, *Professor of Biological Sciences*
- F. Lynn Carpenter, Ph.D. University of California, Berkeley, *Assistant Professor of Biological Sciences*
- Jeffrey L. Clark, Ph.D. University of Chicago, *Assistant Professor of Biochemistry*
- Carl Cotman, Ph.D. Indiana University, *Professor of Psychobiology*
- Dennis D. Cunningham, Ph.D. University of Chicago, *Associate Professor of Microbiology*
- Rowland H. Davis, Ph.D. Harvard University, *Professor of Biological Sciences*
- Peter S. Dixon, Ph.D. University of Manchester, *Professor of Biological Sciences*
- Donald E. Fosket, Ph.D. University of Idaho, *Associate Professor of Biological Sciences*
- Roland A. Giolli, Ph.D. University of California, Berkeley, *Professor of Psychobiology and Anatomy*
- Marion Goldsmith, Ph.D. University of Pennsylvania, *Assistant Professor of Biological Sciences*
- Gale A. Granger, Ph.D. University of Washington, *Professor of Immunology*
- George A. Gutman, Ph.D. Stanford University, *Assistant Professor of Medical Microbiology and Molecular Biology and Biochemistry*
- Peter F. Hall, Ph.D. University of Utah, M.D. University of Sydney, *Chairman of the Department of Physiology and Professor of Physiology and Obstetrics & Gynecology*
- Barbara Ann Hamkalo, Ph.D. University of Massachusetts, *Assistant Professor of Biological Sciences*
- G. Wesley Hatfield, Ph.D. Purdue University, *Associate Professor of Microbiology*
- Sidney Hayes, Ph.D. Oregon State University, *Assistant Professor of Molecular Biology*
- Patrick L. Healey, Ph.D. University of California, Berkeley, *Associate Professor of Biological Sciences*
- George L. Hunt, Ph.D. Harvard University, *Associate Professor of Biological Sciences (on leave F, W)*
- Kenneth H. Ibsen, Ph.D. University of California, Los Angeles, *Associate Professor of Biochemistry*
- Robert K. Josephson, Ph.D. University of California, Los Angeles, *Professor of Biological Sciences and Psychobiology (on leave)*
- Keith E. Justice, Ph.D. University of Arizona, *Dean of Professional and Interdisciplinary Studies and Associate Professor of Biological Sciences and Information and Computer Science*
- Herbert P. Killackey, Ph.D. Duke University, *Associate Professor of Psychobiology and Anatomy*
- David T. Kingsbury, Ph.D. University of California, San Diego, *Associate Professor of Microbiology*
- Robert I. Kohut, M.D. University of Chicago School of Medicine, *Professor of Surgery (Otolaryngology) and Chief of Otolaryngology*
- Harold Koopowitz, Ph.D. University of California, Los Angeles, *Associate Professor of Biological Sciences (on leave F)*
- Stuart M. Krassner, Sc.D. The Johns Hopkins University, *Professor of Biological Sciences*
- Howard M. Lenhoff, Ph.D. The Johns Hopkins University, *Professor of Biological Sciences*
- Mark M. Littler, Ph.D. University of Hawaii, *Associate Professor of Biological Sciences*
- Gary Stephen Lynch, Ph.D. Princeton University, *Professor of Psychobiology and Social Sciences*
- Richard E. MacMillen, Ph.D. University of California, Los Angeles, *Professor of Biological Sciences*
- Jerry E. Manning, Ph.D. University of Utah, *Assistant Professor of Biochemistry*
- Gordon A. Marsh, B.S. University of California, Berkeley, *Director of the Museum of Systematic Biology and Lecturer in Biological Sciences*
- James L. McGaugh, Ph.D. University of California, Berkeley, *Vice Chancellor – Academic Affairs and Professor of Psychobiology and Psychiatry & Human Behavior*
- Calvin S. McLaughlin, Ph.D. Massachusetts Institute of Technology, *Professor of Biochemistry*
- Kivie Moldave, Ph.D. University of Southern California, *Chairman of the Department of Biological Chemistry and Professor of Biochemistry*
- Harris S. Moyed, Ph.D. University of Pennsylvania, *Associate Dean of Academic Affairs, College of Medicine and Professor of Microbiology*
- Garth Nicolson, Ph.D. University of California, San Diego, *Professor of Biological Sciences*
- Ernest P. Noble, Ph.D. Oregon State University, M.D. Case Western Reserve, *Professor of Psychobiology, Psychiatry & Human Behavior, and Medical Pharmacology & Therapeutics (on leave)*

William D. Nunn, Ph.D. City University of New York, *Assistant Professor of Biochemistry*

Jerry L. Osborne, Ph.D. University of California, Davis, *Assistant Professor of Physiology*

Dennis Piszkiwicz, Ph.D. University of California, Santa Barbara, *Assistant Professor of Biochemistry*

Mu-ming Poo, Ph.D. The Johns Hopkins University, *Assistant Professor of Physiology*

Eloy Rodriguez, Ph.D. University of Texas, Austin, *Assistant Professor of Biological Sciences*

Philip W. Rundel, Ph.D. Duke University, *Associate Professor of Biological Sciences*

Jon F. Sassin, M.D. St. Louis University, *Associate Professor of Psychobiology and Neurology*

Gerald B. Sinykin, M.D. University of Minnesota, *Director of Student Health Services and Lecturer in Biological Sciences*

Eric J. Stanbridge, Ph.D. Stanford University, *Assistant Professor of Microbiology*

Wendell M. Stanley, Jr., Ph.D. University of Wisconsin, *Associate Professor of Biochemistry*

Arnold Starr, M.D. New York University, *Professor of Psychobiology and Neurology*

Grover C. Stephens, Ph.D. Northwestern University, *Professor of Biological Sciences*

Paul S. Sypherd, Ph.D. Yale University, *Chairman of the Department of Medical Microbiology and Professor of Microbiology*

Krishna K. Tewari, Ph.D. Lucknow University, *Professor of Biochemistry*

Richard F. Thompson, Ph.D. University of Wisconsin, *Professor of Psychobiology and Psychology*

Lubomir Jan-Vacav Valenta, M.D., Ph.D. Charles University, *Associate Professor of Medicine (Endocrinology) and Chief of Endocrinology*

Marcel Verzeano, M.D. University of Pisa Medical School, *Professor of Psychobiology*

Edward K. Wagner, Ph.D. Massachusetts Institute of Technology, *Associate Professor of Virology*

Robert C. Warner, Ph.D. New York University, *Chairman of the Department of Molecular Biology and Biochemistry and Professor of Biochemistry*

James D. Watson, Ph.D. Auckland University, *Associate Professor of Microbiology*

Jack C. Waymire, Ph.D. Ohio State University, *Assistant Professor of Psychobiology*

Norman M. Weinberger, Ph.D. Western Reserve University, *Chairman of the Department of Psychobiology and Professor of Psychobiology*

Archie F. Wilson, M.D. University of California, San Francisco, Ph.D. University of California, Los Angeles, *Associate Professor of Medicine (Pulmonary) and Chief of Pulmonary Diseases*

Richard E. Whalen, Ph.D. Yale University, *Professor of Psychobiology (on leave W, S)*

Stephen H. White, Ph.D. University of Washington, *Vice Chairman of the Department of Physiology and Associate Professor of Physiology*

Clifford A. Woolfolk, Ph.D. University of Washington, *Associate Professor of Microbiology*

Pauline I. Yahr, Ph.D. University of Texas, *Assistant Professor of Psychobiology*

Professors have academic residence in one of the departments within the School. For specific areas of interest, see listings under the various departments: Developmental and Cell Biology, page 89; Ecology and Evolutionary Biology, page 90; Molecular Biology and Biochemistry and Biological Chemistry, page 91; Psychobiology, page 93; Medical Microbiology, page 96; and Physiology, page 97.

UNDERGRADUATE COURSES IN BIOLOGICAL SCIENCES

Undergraduates have the opportunity to concentrate in several areas of biology which may be defined by taking a series of related courses in the School. Examples of these areas and courses involved are listed below.

Anatomy: 126, 148, 156, 164

Animal Physiology: 133, 133L, 138, 138L, 140, 156, 160, 161, 162, 163, 173, 188; Developmental and Cell 210, 263, 266, 287

Aquatic Ecology: 135, 169, 175, 176, 176L, 178, 179, 180, 181, 182

Biophysics: 123; Chemistry 130A-B-C or 131A-B-C; Molecular Biology 261, 262

Cell Biology: 129, 144A, 144B, 151, 161; Developmental and Cell 205, 230A

Developmental Biology: 136, 136L, 137B, 137LB, 142, 145, 147, 147L, 148, 149

Ecological Energetics: 138, 138L, 172, 173, 178

Entomology: 149, 177, 188; Developmental and Cell 210, 262

Genetics: 137A, 137B, 137LB, 137C, 151; Developmental and Cell 230B; Molecular Biology 207

Invertebrate Biology: 135, 143, 149, 169, 175, 177, 180, 188

Microbiology: 121, 122, 122L, 124, 124L (These courses

serve as an organized one-year sequence in the basic micro-biological sciences and have been designed to meet the requirements of professional schools in the topic areas; i.e., Medical Technology); Molecular Biology 221
Molecular Biology and Biochemistry: 123, 142, 153; Chemistry 130A-B-C or 131A-B-C; Molecular Biology 205A-B, 207, 214, 243, 261, 262
Neurobiology and Behavior: 133, 133L, 152, 153, 155, 156, 157, 158, 160, 161, 162, 163, 164, 174
Organismic Biology: 132, 132L, 135, 143, 170, 173, 175, 177, 180, 185
Plant Biology: 132, 132L, 134A, 134LA, 134B, 134LB, 147, 147L, 167, 171, 172, 175, 176, 176L
Terrestrial Ecology: 167, 171, 177, 183, 185
Theoretical Ecology: 120, 170, 174, 186

Courses for Nonmajors

Nonmajors may also take other courses for which they have the prerequisites.

1 Fundamentals of Modern Biology

A group of courses which, along with Biological Sciences 103A and 103B, provides the nonmajor with a fundamental knowledge of biology. Each course is an independent unit, with no prerequisites. Students may take any combination of courses within the collection.

1A Physiology (5) F

Lecture, three hours; laboratory, one and three-fourths hours. How animal cells and animals work, with special attention to the structure and function of the human body.

1B Molecular Biology (4) W

Lecture, three hours. The molecules of life, with emphasis on medical applications.

1C Populations and Environment (4) S

Lecture, three hours. Principles of ecology: application to populations, communities, ecosystems, and humans.

1D Human Development and Genetics (4) S

Lecture, three hours. Examination of human reproduction and embryonic fetal and postnatal development. Problems of birth defects, teratogenesis, cancer, and aging in relation to their genetic basis. Possibilities and consequences of man's intervention in developmental and evolutionary processes.

1E Botany (5) W

Lecture, three hours; laboratory, three hours. Flowering plants considered in terms of their structure and function. These will be related to their roles in ecology and human needs.

103A-B-C Biological Bases of Human Behavior

Lecture, three hours. An introduction to the biological bases of human behavior which consists of three courses forming a one-year sequence. There are no prerequisites to any of the courses,

but it is recommended that they be taken in sequence in order to provide maximum continuity of subject material.

103A The Evolution and Development of Behavior (4) F

A consideration of mankind's heritage from a biological perspective. The evolution of the behavior of animals and of man and woman as seen from genetic and historical perspectives.

103B The Brain and Behavior (4) W

Consideration of the brain mechanisms underlying psychological processes, including consciousness and sleep, sex, hunger, perception, learning, memory, and language.

103C The Biology of Behavior Disorders (4) S

Consideration of current facts and theories regarding mental illness, brain damage, sexual deviance, violence, and intellectual functioning.

Courses for Both Majors and Nonmajors

1E Botany (5) W

See description above.

25 Biology of Cancer (4) W

Lecture, four hours. The biological, clinical, and psychosocial nature of cancer will be explored through the perspectives of medical researchers, biologists, physicians, and health educators. For students of all majors and designed so that each can increase personal awareness of the biology of cancer.

50 The Biology of Heart Disease (4) W

Lecture, four hours. Guest lecturers from the field of cardiovascular medicine will discuss current concepts on the cause, diagnosis, and treatment of heart disease. Topics will include surgery, rehabilitation, and congenital defects, with a special emphasis on prevention.

60 Horticultural Sciences (4) F, S, Summer

Lecture, three hours; field, three hours. Theory and practice of plant culture. Basic aspects of plant structure and function, soil science, plant pathology, plant pests and irrigation, and the applied aspects of horticulture. Plant cultivation in a garden plot.

61 Horticultural Sciences Field (2) F, W, S, Summer

Continuation of field work begun in previous quarter. Prerequisite: completion of Biological Sciences 60. May not be repeated for credit.

71 Introduction to Human Physiology (4) Summer

Lecture, three hours. The respiratory, cardiovascular, excretory, digestive, and autonomic nervous systems with final emphasis on the functioning unity of the interacting systems of the human body.

78 Health (4) F, S

Lecture, three hours. Lectures by eminent scientists and discussion on subjects relating to the basic current issues in health areas. Topics will vary from year to year. Pass/Not Pass only.

83 Plants and Man Today (4) Summer

Lecture, six hours. Introduction to the plant kingdom and ex-

ploration of the numerous ways plants and animals, including man, interact.

Core Curriculum

Biological Sciences Lectures 101A-B-C-D-E-F-G and Laboratories 101LA-B-C-D-E-F are required of all Biological Sciences majors. Lecture, three hours; laboratory, three hours. (Transfer students who have successfully completed one or more years of college biology should consult with the Biological Sciences Student Affairs Office for possible exemption from the first year of the Core.)

101A Evolutionary Biology (4) F

Lecture. Introduction to the diversity of plant and animal life and the origin of this diversity. Prerequisite: concurrent enrollment in or completion of Chemistry 1, 2.

101LA Evolutionary Biology Laboratory (1) F

Corequisite: Biological Sciences 101A.

101B Developmental and Cell Biology (4) W

Lecture. The basic concepts of cell biology will be treated in terms of the developing organism. Gametogenesis, fertilization, embryonic determination and differentiation, morphogenesis, organogenesis, and the genetic control of plant and animal development will be discussed. The structure and function of the various organelles will be examined in the context of their developmental concepts. Prerequisite: Biological Sciences 101A.

101LB Developmental and Cell Biology Laboratory (1) W

Corequisite: Biological Sciences 101B.

101C Physiology (4) S

Lecture. The major functional features of plants and animals relevant to their survival. The principal focus of discussion is the whole organism and its constituent organs and organ systems; functional attributes of cells are introduced as required. Discussion of neurophysiology and behavior is deferred to 101D. Prerequisite: Biological Sciences 101B.

101LC Physiology Laboratory (1) S

Corequisite: Biological Sciences 101C.

101D Psychobiology (4) F, W

Lecture. Consideration of the evolution of behavior, including ethological and psychological aspects and an analysis of the neuroanatomical, neurochemical, neurophysiological, and neuroendocrine systems underlying basic behavioral processes. Prerequisite: Biological Sciences 101C.

101LD Psychobiology Laboratory (2) F, W

Corequisite: Biological Sciences 101D.

101E Ecology (4) F, W

Lecture. Basic ecological principles and their relevance at the several levels of organization: individuals, populations, communities, and ecosystems; interactions of these levels with the physical and biotic environments. Prerequisite: Biological Sciences 101C.

101LE Ecology Laboratory (2) F, W

Corequisite: Biological Sciences 101E.

101F Biochemistry and 101G Molecular Biology form a continuous sequence covering modern biochemistry and molecular biology.

101F Biochemistry (4) W, S

Structure and properties of proteins; major biochemical pathways and the mechanisms for their control. Prerequisite: completion of or concurrent enrollment in Chemistry 4.

101LF Biochemistry Laboratory (2) W, S

Experiments on the properties of enzymes and on the culture and isolation of mutants of microorganisms. Prerequisite: concurrent enrollment in or completion of Biological Sciences 101F.

101G Molecular Biology (4) F, S

Biochemistry and replication of nucleic acids; molecular genetics; protein biosynthesis; genetic code; regulation of expression of genetic information; biochemical evolution. Prerequisite: Biological Sciences 101F.

Satellite Courses

120 Quantitative Ecology (4) S

Lecture, four hours. Analysis and survey of quantitative ecological models and their role in elucidating community structure and functioning. Particular attention will be given to discrete and continuous models of predation and competition, and such topics as stability theory, optimal foraging theory, r- & K-selection, and succession. Prerequisites: Biological Sciences 101E and Mathematics 2A-B or equivalent.

121 Immunology with Hematology (4) W

Lecture, three hours; discussion, one hour. Survey course designed to cover the general concepts important in immunology. Discussion of antibodies, antigens, antigen-antibody reactions, cells and tissues of the lymphoreticular and hemopoietic systems, and the individual and collective components of the cell-mediated and humoral immune response. Prerequisite: Biological Sciences 101F or consent of instructor.

122 General Microbiology (4) F

Lecture, three hours; discussion, one hour. Comparative metabolism of small molecules and cell structure and relationship to microbial classification. Macromolecule synthesis and regulation, sporulation, cell division, growth, and effect of antibiotics. Prerequisite: Biological Sciences 101F.

122L General Microbiology Laboratory (4) F

Laboratory, nine hours. Selective isolation of wide variety of microbial types. Characterization and identification by morphological and comparative nutritional and biochemical approaches. Exploitation for use in industrial, medical, and biological research applications. Prerequisites: concurrent enrollment in Biological Sciences 122 and consent of instructor.

123 Biophysical Chemistry (4) S

Lecture, three hours; discussion, one hour. Determination of the

- structure and properties of molecules and biological macromolecules using spectroscopic, hydrodynamic, thermodynamic, and radiation scattering methods. Same as Chemistry 130C. Prerequisite: Chemistry 130B or 131B.
- 124 Virology (4) S**
Lecture, three hours. Infective cycle, growth, reproduction, and host interrelationships of animal viruses. Molecular effects of virus infection in cells and animals and the relation between virus infection and cancer. Prerequisite: Biological Sciences 101F.
- 124L Virology Laboratory (4) S**
Laboratory, six hours. Selected students may participate in the laboratory portion of Biological Sciences 124. Prerequisites: concurrent enrollment in Biological Sciences 124 and consent of instructor.
- 127 Pathogenic Microbiology (4) W**
Lecture, three hours. The properties and characteristics of disease-causing microorganisms including bacteria, fungi, and viruses will be explored in light of their ability to cause disease. The nature of the host parasite relationship and the role of immunity in the pathogenesis of infectious diseases will be examined. Prerequisite: Biological Sciences 122 or consent of instructor.
- 129 Biogenesis of Cell Organelles (4) S of even years**
Lecture, three hours. Molecular biology of mitochondria and chloroplasts. The organization and expression of extranuclear genes. Prerequisite: Biological Sciences 101G.
- 131 Biology of the Open Oceans (4) Summer**
Lecture, six hours. Introduction to descriptive physical oceanography including physical and chemical characteristics of sea water and circulation and water masses of oceans. Survey of marine habitats. Impact of man on marine environment. Prerequisite: course in general biology or consent of instructor.
- 131L Biology of the Open Oceans Laboratory (1) Summer**
Laboratory, three hours. Prerequisite: concurrent enrollment in Biological Sciences 131.
- 132 Comparative Morphology of Vascular Plants (4) F**
Lecture, three hours. Comparative microscopic and ultra-microscopic structure, evolution of major groups of vascular plants. Experimental work will be emphasized as a basis for interpretation. Prerequisite: Biological Sciences 101C or consent of instructor. Not offered 1977.
- 132L Comparative Morphology of Vascular Plants Laboratory (1) F**
Laboratory, three hours. Prerequisite: concurrent enrollment in Biological Sciences 132. Not offered 1977.
- 133 Sensory Physiology (4) S**
Lecture, three hours. Physiology and function of sense organs. Emphasis on transduction at the cellular level. Prerequisite: consent of instructor.
- 133L Sensory Physiology Laboratory (1) S**
Laboratory, three hours. Prerequisite: concurrent enrollment in Biological Sciences 133.
- 134A Plant Physiology (4) S**
Lecture, three hours. Plant hormones, growth, and development. Prerequisite: Biological Sciences 1E or consent of instructor.
- 134LA Plant Physiology Laboratory (1) S**
Laboratory, three hours. Prerequisite: concurrent enrollment in or completion of Biological Sciences 134A.
- 134B Plant Physiology (4) F**
Lecture, three hours. Plant metabolism, mineral nutrition, photosynthesis, cell physiology. Prerequisite: Biological Sciences 1E or consent of instructor.
- 134LB Plant Physiology Laboratory (1) F**
Laboratory, three hours. Prerequisite: concurrent enrollment in or completion of Biological Sciences 134B.
- 135 Biology of an Organism: Hydra (4) S**
Lecture, three hours. Integration of some basic concepts of biology through the study of the life history of the simple freshwater hydra. Reading material will consist mostly of research and review articles. Prerequisites: Biological Sciences 101B and consent of instructor.
- 136 Developmental Biology (4) W**
Lecture, three hours. Principles governing the development of animal and plant cells, tissues, and organisms. Topics include reproduction, growth, aging, differentiation, and pattern formation. Prerequisite: Biological Sciences 101C or consent of instructor.
- 136L Developmental Biology Laboratory (2) S**
Laboratory and demonstrations, five hours. Methods in developmental biology with emphasis on manipulations used in tissue and organism research. Prerequisite: concurrent enrollment in or completion of Biological Sciences 136.
- 137 Genetics**
- 137A Genetics of Bacteria and Viruses (4) F**
Lecture, four hours. Prerequisite: Biological Sciences 101C.
- 137B Eucaryote Genetics (4) W**
Lecture, four hours. Basic genetics of animals, plants, and man. Corequisite: Biological Sciences 137LB. Prerequisite: Biological Sciences 101C.
- 137LB Eucaryote Genetics Laboratory (1) W**
Laboratory, three hours. Corequisite: Biological Sciences 137B.
- 137C Human Genetics (4) S**
Lecture, four hours. Discussion of normal and abnormal genetic variation in the human population. Prerequisite: Biological Sciences 137B and 137LB.
- 138 Comparative Animal Physiology (4) F**
Lecture, three hours. Maintenance aspects of physiology: water balance; feeding and digestion; metabolism; respiration and circulation. Prerequisite: Biological Sciences 101C.
- 138L Comparative Animal Physiology Laboratory (1) F**
Laboratory, three hours. Prerequisite: concurrent enrollment in or completion of Biological Sciences 138.

140 Membrane Physiology (4) S

Lecture, three hours. Introduction to structure and function of biological membranes emphasizing basic concepts. Passive and active ion transport, isolation, and chemical analysis of membranes, membrane architecture, and physical methods for studying membranes. Prerequisites: Biological Sciences Core, Physics 3A-B-C or 5A-B-C and Mathematics 2A-B-C, or consent of instructor. Not offered 1978.

141 Comparative Plant Biochemistry (4) W

Lecture, three hours. Introduction to the evolution, taxonomy, and biological significance of secondary metabolites in lower and higher plants. This course covers the structures, compartmentalization, biosynthesis, function, and role of naturally occurring compounds in plants. These include carbohydrates, lipids, terpenoids, polyketides, phenolics, nitrogenous compounds (amino acids, alkaloids, porphyrins), and sulfur and halogen containing compounds. The importance of plant chemicals in human affairs is also discussed. Prerequisites: Biological Sciences 1E and Chemistry 3, 4, and 5.

142 Molecular Biology of Development (4) S

Lecture and discussion, three hours. Molecular mechanisms in the control of development. Emphasis will be placed on cell differentiation. Prerequisite: Biological Sciences 101G or consent of instructor. Not offered 1978.

143 Symbiosis (4) S of odd years

Lecture, three hours. Introduction to the variety of symbiotic relations ranging from parasitism to mutualism. Prerequisite: Biological Sciences 101C or consent of instructor.

144 Cell Biology**144A Cell Organelles and Membranes (4) F**

Lecture, four hours. Ultrastructure and function of cellular organelles and membrane systems. Prerequisite: Biological Sciences 101C.

144B The Nucleus (4) S

Lecture, four hours. Ultrastructure and biochemical function of the nucleus, with an emphasis on structure of chromatin, the mitotic cycle, and meiosis. Prerequisite: Biological Sciences 101C.

145 Principles of Regeneration (4) W

Lecture and seminar, three hours. Consideration of developmental problems in the restoration of body parts in invertebrate and vertebrate animals. Prerequisite: Biological Sciences 136.

147 Growth and Development of Plants (4) W

Lecture, three hours. An analysis of plant growth and development at the organismic, cellular, and molecular levels. Subjects covered will include: plant reproduction and embryology; morphogenesis of plant meristems; cell differentiation; and differentiation gene expression, genetic transformation, and somatic cell genetics. Prerequisite: Biological Sciences 101C. Not offered 1978.

147L Growth and Development of Plants Laboratory (1) W

Prerequisite: concurrent enrollment in or completion of Biological Sciences 147. Not offered 1978.

148 Vertebrate Embryology (4) S, Summer

Lecture, three hours. Introduction to the study of animal development through organogenesis with emphasis on the vertebrates. Prerequisite: introductory course in biological sciences.

149 Insect Development (4) S

Lecture, three hours. Insects as providing ideal experimental situations for analyzing major problems of developmental biology. Emphasizes genetic and endocrine aspects. Prerequisite: consent of instructor. Not offered 1978.

151 Structure and Function of Eucaryotic Chromosomes (4) S

Lecture, three hours. Molecular organization of chromosomes, comparisons of active vs. inactive chromatin structure, current research in chromosome function and its regulation, emphasis on techniques utilized to probe these problems. Prerequisite: Biological Sciences 101G.

152 Neural Mechanisms of Learning (4) S of odd years

Lecture, three hours. Review and analysis of the neural mechanisms and processes underlying learning, ranging from habituation in simple neuronal systems through neural processes of learning in the intact mammalian brain to brain substrates of human information processing and language. Prerequisite: Biological Sciences 101D or 103B.

153 Chemistry and Pharmacology of Synaptic Transmission (4) S of even years

Lecture and discussion, three hours. Introduction to the chemistry and pharmacology of neural tissue with an emphasis on the regulation of neurotransmitter synthesis. Prerequisite: Biological Sciences 101G or consent of instructor.

155 Seminar in Psychobiology (4-4) F, W

Seminar, three hours. Consideration of selected current research problems concerning neurobiology and behavior. Students will prepare and present papers. Prerequisites: Biological Sciences 101D or 103A-B-C and consent of instructor.

156 Neural Systems (4) W of even years

Lecture and discussion, three hours. Provides example of how modern neuroscience integrates several types of disciplines such as anatomy, physiology, developmental biology, and behavioral biology to develop hypotheses about the operation of particular brain regions. An attempt is made to unify these levels. The course would be most useful to students who have had satellite courses or research experience in neurophysiology or neurochemistry. Prerequisite: Biological Sciences 101D.

157 Animal Behavior (4) S of odd years

Lecture and discussion, three hours. An analysis of the genetic and experimental determinants of animal behavior. Prerequisite: Biological Sciences 101D or 103A or consent of instructor.

158 Learning and Memory (4) F of odd years

Lecture and discussion, three hours. A consideration of basic issues concerning the nature of behavioral plasticity and information storage and their neural substrates. Prerequisite: Biological Sciences 101D or 103A-B-C.

160 General Neurophysiology (4) W

Lecture and discussion, three hours. An introduction to the basic functioning of the nervous system emphasizing systems in the mammalian central nervous system. Prerequisites: Biological Sciences 101D, Mathematics 2A-B-C and Physics 3B or 5A.

161 Cellular Neurobiology (4) S of even years

Lecture and discussion, three hours. Introduction to the biophysics and biochemistry of nerve cells emphasizing membrane potentials, conduction and transmission, synaptic chemistry, and information processing. Prerequisite: Biological Sciences 101D. Not offered 1978.

162 Synaptic Mechanisms (4) S of odd years

Lecture and discussion, three hours. New concepts and current literature in the developing areas of synapse function. Prerequisite: Biological Sciences 101D or consent of instructor.

163 Psychoneuroendocrinology (4) F of even years

Lecture and discussion, three hours. Introduction to materials showing that hormones are involved in neural development and mature function and behavior and that behavior is involved in the control of hormonal secretions. Prerequisite: Biological Sciences 101D.

164 Neuroanatomy (4) S

Lecture and discussion, three hours. Introduction to comparative neuroanatomy emphasizing the mammalian central nervous system. Prerequisite: Biological Sciences 101D.

167 Field Botany (4) S

Lecture, three hours; laboratory and field, three hours. A taxonomic survey of selected plant families, including the role of floral biology and agencies of pollination in angiosperm evolution. Each student completes a short research problem. Prerequisites: Biological Sciences 101E and consent of instructor.

169 Marine Ecology (4) F

Lecture, three hours. Fundamental concepts of marine ecology. Physical and chemical factors, current systems and water masses, trophic ecology, distributions of organisms, survey of pelagic and benthic communities. Prerequisite: completion of or concurrent enrollment in Biological Sciences 101E.

170 Processes of Evolution (4) F of odd years

Lecture, three hours; discussion, one hour. Basic concepts of biotic change through natural selection: early evolution, the fossil record, natural selection, sources of variability, expression of variability, the role of chance in evolution, speciation, altruism, coevolution, the ascendancy of man. Prerequisite: Biological Sciences 101E.

171 Vegetation and Ecosystem Dynamics (4) F

Lecture, three hours; two weekend field trips. An introduction

to major vegetation types of the world and the dynamics of their ecosystems. Particular emphasis on community ecosystem dynamics. Major emphasis will be given to community structure. A research paper is required. Prerequisites: completion of or concurrent enrollment in Biological Sciences 101E and consent of instructor. Not offered 1977.

172 Physiological Plant Ecology (4) S of odd years

Lecture, three hours; field, three hours. An examination of the functional response of individual plants and plant communities to their environment. A research paper is required. Prerequisites: Biological Sciences 101E and consent of instructor; a course in plant physiology strongly recommended.

173 Physiological Animal Ecology (4) W of even years; S of odd years

Lecture, three hours; field, three hours. An examination of the functional means by which vertebrates cope with their environments; roles of osmoregulation, thermoregulation, and energy metabolism in the lives of tetrapods. Prerequisites: Biological Sciences 101E and consent of instructor.

174 Behavioral Ecology (4) W of odd years

Lecture, three hours; laboratory, two hours. Consideration of animal behavior as an evolutionary solution to problems encountered during an animal's life cycle. Includes a broad comparative approach to communication, habitat selection, and food finding. Prerequisite: Biological Sciences 101E or consent of instructor.

175 Phycology (4) W

Lecture, three hours; laboratory, two hours; two field trips. A survey of the structure, reproduction, and life histories of fresh-water and marine algae. Prerequisite: Biological Sciences 101E or consent of instructor.

176 Phytoplankton Biology (4) S of odd years

Lecture, three hours. Systematics, population ecology, and general physiology of planktonic algae. Prerequisites: Biological Sciences 169 and 175 or consent of instructor.

176L Phytoplankton Biology Laboratory (2) S of odd years

Laboratory, three hours; field, one hour. Identification procedures, use of taxonomic literature, and development of manipulatory skill in evaluating phytoplankton populations. Prerequisite: concurrent enrollment in or completion of Biological Sciences 176.

177 General Entomology (4) F of even years

Lecture, three hours; laboratory, six hours; three field trips. Introduction to insect structure, function, development, and classification. Emphasis on natural history, environmental association, and relationships to man. Collection required. Prerequisite: consent of instructor.

178 Aquatic Productivity (4) F of odd years

Lecture, three hours. Primary production in marine, estuarine, and fresh-water environments. Productivity is also dealt with at levels of grazers, predators, and decomposers. Methods of

measurement and their interpretation are of special concern. Prerequisites: Biological Sciences 169 and 176 or consent of instructor.

- 179 Limnology and Fresh-water Biology (4) F**
Lecture, three hours; discussion, one hour. Biology of fresh-water environments: lakes, ponds, rivers, their biota, and the factors which influence distribution of organisms. Prerequisite: Biological Sciences 101E or consent of instructor.
- 180 Invertebrate Zoology (4) W**
Lecture, three hours; laboratory, five hours; four field trips. Survey of major invertebrate phyla. Emphasis on comparative morphology, evolution, adaptive physiology, and biology of local marine invertebrates. Prerequisites: Biological Sciences 101B and 101E or consent of instructor.
- 181 Applied Marine Ecology (6) W of odd years**
Lecture, one hour; discussion, one hour; laboratory, six hours; field. Applied and comparative studies of intertidal community structure. Analytical methods used in assessment of standing crops and food web structure. Data collected from warm and cold water areas will be contrasted and presented as final report in manuscript form. Prerequisites: Biological Sciences 169 and consent of instructor.
- 182 Applied Marine Productivity (6) W of even years**
Lecture, one hour; discussion, one hour; laboratory, six hours; field. Applied and comparative studies of energy budgets and trophodynamics of intertidal populations and communities. Application of productivity measurement methods, reduction, interpretation, and reporting of data. Prerequisites: Biological Sciences 169 and consent of instructor.
- 183 Introduction to Geology (5) F, S**
Lecture, two hours; laboratory and field, six hours. Basic principles of physical and historical geology. Emphasis on role of geology in present-day scientific frontiers, and on nonrenewable natural resources and environmental problems. Prerequisites: Biological Sciences 101E and 101LE or equivalent and consent of instructor.
- 185 Field Ornithology (4) S of even years**
Lecture, two hours; field and laboratory, three hours; two weekend field trips. Field studies and reading from periodical literature. Emphasis on behavior and ecology, although aspects of physiology and taxonomy will be covered. Prerequisite: consent of instructor.
- 186 Ecology of Terrestrial Communities (4) S of odd years**
Lecture, three hours. Community function, structure, development, and evolution. Predation, competition, symbiosis, species diversity, niche theory, succession, island biogeography, and coevolution. Prerequisites: Biological Sciences 101E and 101LE.
- 188 Introduction to Insect Physiology (4) W**
Lecture, three hours. Physiology of insects. Insect respiration, digestion, excretion, and neurobiology, including sensory systems and effectors. Prerequisite: upper division.

Seminars, Special Courses, and Independent Study

Seminars

- 2 Freshman Seminars (1-1-1) F, W, S**
Once a week seminar of a small number of students and a faculty member to discuss a wide variety of relevant biological topics. Prerequisite: freshman Biological Sciences majors. Pass/Not Pass only.
- 55 Sophomore Seminars (2-2-2) F, W, S**
Intensive study of selected topics in experimental biology. Prerequisite: sophomore Biological Sciences majors. Pass/Not Pass only.
- 190 Junior/Senior Seminars (2-2-2) F, W, S**
Intensive study of selected topics in experimental biology. Once a week seminar of a small group of students with a faculty member. Prerequisite: junior/senior Biological Sciences majors. Pass/Not Pass only.

Special Courses

- 97 Education Motivation (4) F, W, S**
Field, four hours. A program in which students develop and deliver special enriched educational programs in biological sciences which are presented in junior and senior high schools. May be repeated once for credit. Majors only. Pass/Not Pass only.
- 98 Special Group Activities F, W, S**
Sec. 1 Health Science Experience (0)
Involves students' interaction with health sciences professionals.
Sec. 2 Tutoring in Biological Sciences (1 to 4)
A program in which students are trained to act as peer tutors and provide tutorial assistance to University undergraduates. May be repeated for a total of eight units.
- 198 Research Enrichment (4-4-4) F, W, S**
Prerequisite: enrollment in Research Enrichment Program.

Independent Study

- 199A-B-C Independent Study in Biological Sciences Research (1 to 4 per quarter) F, W, S**
Involves individual laboratory research under a professor and possibly graduation with honors. Prerequisite: consent of instructor. May be graded "IP."

GRADUATE STUDY IN THE SCHOOL OF BIOLOGICAL SCIENCES

Graduate registration is a prerequisite for all 200-299 courses listed in the following departmental sections.

Department of Developmental and Cell Biology

Developmental and cell biology is concerned with the development, physiology, structure, and function of organisms and their component cells. The Department maintains facilities for research involving biochemistry; genetics; electron microscopy; cell, tissue, and organism culture; microsurgery; and neurophysiology.

Students in the Department of Developmental and Cell Biology are offered a one-year graduate Core program which consists of a three-quarter sequence in developmental biology, genetics, and cell biology, and/or a three-quarter sequence of organismic physiology. One or both Core sequences may be taken simultaneously with the graduate Core in the Department of Molecular Biology and Biochemistry. Students are able to diverge from this basic Core into their areas of special interest by means of graduate seminar courses.

The main emphasis of the Developmental and Cell Biology graduate training program is research training in (1) developmental and cell biology and (2) comparative physiology of animals and plants. However, since many doctoral students in the Department undertake academic careers, the Department expects each graduate student to participate in a directed teaching experience during the graduate program.

Some faculty from the Department are members of an interdisciplinary biophysics and biophysical chemistry group. See page 79 for a description of the program.

PARTICIPATING FACULTY

Michael W. Berns, *Chairman*: Cell organelles and laser microbeams

Joseph Arditti: Physiology of orchids

Ernest A. Ball: Developmental biology of higher plants

Albert F. Bennett: Environmental physiology; physiological ecology; comparative physiology

Hans R. Bode: Developmental biology of coelenterates

Peter J. Bryant: Diploid genetics and development

Susan V. Bryant: Regeneration and vertebrate development

Richard D. Campbell: Developmental biology of invertebrates

Rowland H. Davis: Biochemical genetics of neurospora

Donald E. Fosket: Cell growth and development

Marion Goldsmith: Molecular biology of differentiation

Barbara Ann Hamkalo: Electron microscopy of genetic activity

Patrick L. Healy: Cell biology and developmental cytology

Robert K. Josephson: Comparative neurophysiology

Harold Koopowitz: Sensory and invertebrate physiology

Stuart M. Krassner: Parasitology and invertebrate biology

Howard M. Lenhoff: Physiology and developmental biology of marine invertebrates

Jerry E. Manning: Gene sequence organization in eucaryote DNA; electron microscopy

Garth Nicolson: Supramolecular organization of normal and tumor cell surfaces

Eloy Rodríguez: Biological chemistry of plant chemicals

Howard A. Schneiderman: Developmental biology and insect physiology

Grover C. Stephens: Comparative animal physiology

COURSES IN DEVELOPMENTAL AND CELL BIOLOGY

200A-B-C Research in Developmental and Cell Biology (2 to 12 per quarter) F, W, S

Individual research supervised by a particular professor. Prerequisite: consent of instructor.

201A-B-C Developmental and Cell Biology Journal Club (4-4-4) F, W, S

Seminar, two hours. Advanced study in various fields of organismic biology. Prerequisite: consent of instructor.

202A-B Techniques in Developmental and Cell Biology (5-5) W, S

Lecture, two hours; laboratory, six hours. Techniques in electron microscopy, histology, autoradiography, microsurgery, tissue culture, and biochemistry. Biochemistry portion is the same as Molecular Biology 204. Prerequisite: consent of instructor.

203A-B-C Graduate Tutorial in Developmental and Cell Biology (4-4-4) F, W, S

Advanced study in areas not represented by formal courses. Tutorial may involve individual or small group study through discussion, reading, and composition. Time and subject matter to be arranged individually.

205 Microscopy and Photography (2) F

Lecture, two hours. Major techniques and instrumentation related to light microscopy and scientific photography. Course will be practical in its aim. Students will carry out projects using methods introduced. Prerequisite: completion of or concurrent enrollment in any laboratory research course.

210 Foundations of Physiology (4) F, W, S

Lecture and discussion, four hours. Physical and functional principles common to many living forms will be stressed. Will form a

basis for subsequent specialization in any of the subdisciplines of physiology.

230A-B-C Developmental and Cell Biology Graduate Core

230A Cell Biology (4) F

Lecture, four hours. Structure and function of the cell and its organelles; the relationships between cells and between nucleus and cytoplasm in animals and plants. Prerequisite: consent of instructor.

230B Genetics (4) W

Seminar, four hours. Basic diploid genetics, cytogenetics, and the control of genic activity in multicellular organisms. Prerequisite: consent of instructor.

230C Developmental Biology (4) S

Seminar, four hours. Consideration of some major problems such as determination, differentiation, pattern formation, and morphogenesis in plants and animals. Prerequisite: consent of instructor.

236 Special Topics in Cell Biology (1-1-1) F, W, S

Seminar, one hour. A journal club dealing with various molecular and cytological aspects of cell biology.

242 Molecular Biology of Development (4) F, W, S

Lecture, four hours. Lectures and discussion of molecular mechanisms in the control of development. Emphasis placed on cell differentiation. Prerequisite: Biological Sciences 136 or consent of instructor. Not offered 1977-78.

261 Advanced Topics in Plant Physiology (4) F, W

Seminar, two hours. Topics will change from year to year. Subject will be major problems in plant physiology. Prerequisite: Biological Sciences 134A-B or consent of instructor.

262 Advanced Topics in Sensory Physiology (4) F, W, S

Seminar, two hours. Topics will change from year to year. Subjects will be major problems in sensory physiology. Prerequisite: consent of instructor.

263 Insect Physiology (4-4-4) F, W, S

Seminar, one hour. Topics will vary from year to year. Prerequisite: consent of instructor.

264A-B-C Coelenterate Biology (4-4-4) F, W, S

Seminar, two hours. Topics will vary from year to year. Prerequisite: consent of instructor.

265 Parasitology (4-4-4) F, W, S

Seminar, one hour. Topics will vary from year to year. Prerequisite: consent of instructor.

266 Comparative Physiology (4) W

Seminar, two hours. Topics will vary from year to year. Prerequisite: consent of instructor.

267 Morphogenesis of Vascular Plants (4) W

Lecture, three hours. Utilization of current literature with demonstrations of the origins, micro- and ultrastructure, and development of the vascular plant. Theoretical considerations of genic and environmental factors. Prerequisite: Biological Sciences 136,

or equivalent courses in elementary morphology or anatomy of vascular plants, or consent of instructor. Not offered 1978.

268 Structure and Function of Eucaryotic Chromosomes (0) W, S

Lecture, one hour. Participants will be expected to discuss the behavior of chromosomes. Not offered 1978.

286A-B-C Advanced Topics in Developmental Biology (4-4-4) F, W, S

Seminar, two hours. Discussion of recent articles in a wide variety of journals dealing with topics of developmental biology. Prerequisite: consent of instructor.

287 Vertebrate Endocrinology (4) F

Lecture, three hours. Mechanisms by which hormones regulate metabolic and other cellular functions. Primary data upon which current ideas on endocrinology are based. Prerequisites: Biological Sciences 101C and Biological Sciences 101F.

289A-B-C Regeneration (2-2-2) F, W, S

Seminar, one and one-half hours. Current topics in vertebrate regeneration. Prerequisite: consent of instructor.

290A-B-C Colloquium in Developmental and Cell Biology (2-2-2) F, W, S

Colloquium, one and one-half hours. Contemporary research problems. Research students, faculty, and other invited speakers introduce research and review topics. Satisfactory/Unsatisfactory only.

Department of Ecology and Evolutionary Biology

The areas of interest in the Department of Ecology and Evolutionary Biology range from the environmental relations of individuals and populations to the structure and functions of ecosystems. Faculty research focus is on the physiological ecology of plants and animals, plant-animal interactions such as herbivory and pollination biology, photochemical ecology, animal behavior, population ecology, marine ecology, phycology, marine productivity, and phytoplankton ecology. These diverse specializations are linked together by a common interest in general processes of evolution and adaptation.

Ecology requires good preparation in mathematics, statistical methods, computer techniques, and foreign language.

PARTICIPATING FACULTY

- Peter R. Atsatt, *Acting Chairman*: Plant ecology and evolution
 Albert F. Bennett: Environmental physiology; physiological ecology; comparative physiology
 F. Lynn Carpenter: Community ecology
 Peter S. Dixon: Phycology
 George L. Hunt: Behavioral ecology
 Keith E. Justice: Terrestrial population ecology
 Mark M. Littler: Marine productivity and phytoplankton ecology
 Richard E. MacMillen: Physiological animal ecology
 Gordon A. Marsh: General entomology
 Eloy Rodriguez: Chemical ecology; biochemical systematics
 Philip W. Rundel: Physiological plant ecology

COURSES IN ECOLOGY AND EVOLUTIONARY BIOLOGY

- 200A-B-C Research in Ecology and Evolutionary Biology (2 to 12 per quarter) F, W, S**
 Individual research supervised by a particular professor. Prerequisite: consent of instructor.
- 201A-B-C Seminar in Ecology and Evolutionary Biology (2-2-2) F, W, S**
 One and one-half hours. Introduction to areas of faculty research in ecology and evolutionary biology. Required of all entering graduate students.
- 203A-B-C Graduate Tutorial in Ecology and Evolutionary Biology (2 to 12 per quarter) F, W, S**
 Advanced study in areas not represented by formal courses. Tutorials may involve individual or small group study through reading, discussion, and composition. Prerequisite: consent of instructor.
- 220 Seminar in Evolution (2 to 4 per quarter) F, W, S**
- 222 Seminar in Phycology (2 to 4) W**
- 223 Seminar in Population Biology (2 to 4) W**
- 224 Seminar in Vertebrate Biology (2 to 4) S**
- 225 Seminar in Plant Ecology (2 to 4 per quarter) F, W, S**
- 226 Seminar in Marine Ecology (2 to 4) W of odd years**
- 227 Seminar in Population/Community Ecology (2 to 4) F of odd years**
 Not offered 1977.
- 228 Seminar in Productivity Ecology (2 to 4) W of even years**
- 229 Seminar in Terrestrial Community Ecology (2 to 4) S of odd years**
- 264 Topics in Population/Community Ecology (4) S**
 Lecture, one hour; seminar, two hours. Foundations and historical development of ideas in population ecology. Modern con-

cepts will be evaluated through seminars and use of periodical literature. Prerequisite: consent of instructor.

- 270 Evolutionary Ecology (4) F of even years**
 Lecture, three hours. Current problems and concepts in the ecology, genetics, and evolution of populations and communities. The genetics of natural selection, group selection, selection in heterogeneous environments, defense against predation, reproductive ecology.
- 273 Physiological Animal Ecology (4) S of odd years**
 Lecture, two hours; discussion, one hour; laboratory and field, four hours. Studies of the roles of water, energy, and temperature in the lives of vertebrates. Prerequisite: consent of instructor.
- 274 Behavioral Ecology (4) W of even years**
 Seminar, three hours. Examination of selected topics in behavioral ecology through discussion of current literature and preparation of papers. Not offered 1978.
- 278 Productivity Ecology (4) S of odd years**
 Lecture and discussion, three hours. Methodology, literature, energetics, and trophodynamics of biological systems.
- 286 Ecology and Evolution of Terrestrial Communities (4) S of odd years**
 Lecture, two hours; discussion, one hour. Structure and function of terrestrial biological communities. Physical and biological selection pressures affecting species associations. Prerequisite: consent of instructor.

Departments of Molecular Biology and Biochemistry and Biological Chemistry

The Departments of Molecular Biology and Biochemistry, in the School of Biological Sciences, and Biological Chemistry, in the College of Medicine, jointly offer graduate study under the administration of the School of Biological Sciences. The program makes extensive use of health sciences facilities, in addition to those of the School of Biological Sciences. The curriculum is designed to produce creative and productive scientists who have an in-depth comprehension of modern biochemistry and molecular biology and who are highly competent in a given subspecialty. The first year student is required to take a core of advanced courses (204, 205A-B, and 207), to become associ-

ated with the laboratories of at least three different investigators, and to attend the 201A-B-C seminar series. Upon successful completion of the first year, the student is given a comprehensive oral examination to test breadth and depth of knowledge. Although further supplemental work may be recommended, the student normally begins a specific research project in the second year. Participation in the seminar series (201A-B-C) and completion of at least one satellite course per year (210-279) is expected of all continuing students. Regular teaching of undergraduates is part of the training of graduate students at all levels. The graduate committee may waive some of the above requirements for candidates for the Master's degree.

Applicants should have adequate undergraduate preparation in calculus, physics, physical chemistry, organic chemistry, and biochemistry. Students who have not had an adequate physical chemistry course are expected to take Chemistry 130A-B-C during their first year.

Some faculty from the Department of Molecular Biology and Biochemistry are members of an interdisciplinary biophysics and biophysical chemistry group. See page 79 for a description of the program.

PARTICIPATING FACULTY

- Robert C. Warner, *Chairman of the Department of Molecular Biology and Biochemistry*: Molecular biology of nucleic acids; physical chemistry of macromolecules; mechanism of genetic recombination
- Kivie Moldave, *Chairman of the Department of Biological Chemistry*: Protein biosynthesis; ribosome structure
- Stuart M. Arfin: Metabolic regulation
- Edward R. Arquilla: Structure-function characteristics and immunology of protein hormones
- Jeffrey L. Clark: Growth control and polyamine metabolism in cultured cells
- Roland H. Davis: Biochemical genetics, compartmentation and regulation in metabolism of eucaryotes
- Gale A. Granger: Immunology and cellular immunity utilizing *in vitro* systems
- Barbara A. Hamkalo: Structure of chromosomes; regulation of gene expression
- Sidney J. Hayes: Regulation of transcription and replication in temperate bacteriophage
- Kenneth H. Ibsen: Properties, distribution, and control of expression of isoenzymes
- Jerry E. Manning: Gene sequence organization, eucaryotic DNA; electron microscopy

- Calvin S. McLaughlin: Genetic and biochemical approaches to the synthesis of proteins and ribonucleic acids and their regulation in eucaryotic cells
- William D. Nunn: Membrane structure and biosynthesis; lipid biochemistry
- Dennis Piszkiwicz: Protein chemistry; enzymology
- Wendell M. Stanley, Jr.: Physical and biological properties of nucleic acids and nucleoproteins
- Krishna K. Tewari: Differentiation, development, and replication of extranuclear organelles
- Edward K. Wagner: Animal virology, nucleic acid synthesis, and function in infected cells
- Clifford A. Woolfolk: General microbiology; enzymology
- Daniel L. Wulff: Genetic regulatory mechanisms

COURSES IN MOLECULAR BIOLOGY AND BIOCHEMISTRY

- 200A-B-C Research in Molecular Biology and Biochemistry (2 to 12 per quarter) F, W, S**
Individual research supervised by a particular professor. See areas of interest listed under Faculty. Prerequisite: consent of instructor.
- 201A-B-C Seminar in Molecular Biology and Biochemistry (2-2-2) F, W, S**
Seminar, two hours. Content varies. Presentations of research from the departmental laboratories or, when pertinent, of other recent developments. Prerequisite: consent of instructor.
- 203A-B-C Tutorial in Molecular Biology and Biochemistry (4-4-4) F, W, S**
Tutorials in the area of research of a particular professor which relate current research to the literature. Tutorials may be conducted as journal clubs. Prerequisite: consent of instructor.
- 204 Biochemical Methodology (5) S**
Lecture, three hours; laboratory, six hours. An introduction to the techniques available to the modern biochemist. Provides an opportunity to experience many of the methods available for the isolation and characterization of molecules of biological interest. These experiences are provided in the context of a problem(s) in modern molecular biology, and they emphasize the principles behind the techniques employed. Prerequisite: consent of instructor.
- 205A-B Biochemistry Core (5-5) F, W**
Lecture, five hours. An advanced course in general biochemistry. Prerequisites: Biological Sciences 101G or equivalent and Chemistry 3, 4, 5 or equivalent.
- 207A Molecular Genetics Core (5) S**
Lecture, five hours. Molecular genetics; coding, control mechanisms in replication, transcription, and translation. Prerequisite: Biochemistry 205B or equivalent.

- 211 Chromosome Structure and Function (4) F every third year beginning 1979**
Lecture, three hours; demonstration, one hour. An examination of recent concepts of chromosomal function and structure with an exposure to modern electromicroscopic techniques and their interpretation. Prerequisite: consent of instructor.
- 212 Molecular Genetics of Gene Expression in Eucaryotes (4) F every third year beginning 1977**
Lecture or discussion, two hours. An examination of progress in elucidation of mechanisms controlling gene expression. Prerequisite: consent of instructor.
- 214 Biosynthesis of Nucleic Acids (4) W every third year beginning 1980**
Lecture, three hours. Structure, function, and replication of DNA and RNA in procaryotes and eucaryotes; emphasis on current research. Prerequisite: consent of instructor.
- 215 Mechanisms of Recombination (3) W every third year beginning 1977**
Lecture or discussion, two hours. An examination of molecular mechanisms utilized in genetic recombination. Prerequisite: consent of instructor.
- 221 Advanced Immunology (4) S every third year beginning 1979**
Lecture, three hours; discussion, one hour. Detailed examination of the history, techniques, and concepts of humoral antibody formation and cellular immune patterns. Advanced topics in transplantation and tumor immunobiology will be presented. Prerequisite: Biological Sciences 121 or consent of instructor.
- 226 Animal Virology (3) W every third year beginning 1978**
Lecture, two hours. An advanced course considering the elements of viral infection, including the role of viruses as potential oncogenic agents. Prerequisite: consent of instructor.
- 232 Metabolic Regulatory Mechanisms in Eucaryotes (3) W every third year beginning 1979**
Lecture, two hours. Discussion of the classical and current literature relating to the genetic and biochemical regulation of enzyme activity in eucaryotes. Prerequisite: consent of instructor.
- 233 Polyamines and Growth Control (4) W every third year beginning 1979**
Lecture and demonstration or laboratory, two hours. Recent observations on the suspected roles of polyamines in the control of cell growth and on the integration of polyamine metabolism with growth control mechanism will be discussed. Prerequisite: consent of instructor.
- 234 Regulatory Mechanisms and Metabolic Diseases (4) S of odd years**
Lecture, three hours. In-depth study of the molecular mechanisms which control gene expression in both procaryotic and eucaryotic cells. Both specific and integrative control systems will be studied, and these mechanisms will be correlated with control and developmental phenomena. Aberrations of control mechanisms in metabolic diseases will be analyzed. Prerequisites:

Molecular Biology 205A-B and consent of instructor. Same as Medical Microbiology 218.

- 236 Control of Energy Metabolism (3) S every third year beginning 1978**
Lecture, two hours. Discussion of the classical and current literature relating to the control of energy metabolism at the molecular and organismal levels. Prerequisite: consent of instructor.
- 261 Biomolecular Structure (4)**
Lecture, three hours. Discussion of physical technique used to characterize biological macromolecules. Same as Chemistry 261. Prerequisite: Biological Sciences 123, or Chemistry 130A-B-C, or Chemistry 131A-B-C. Not offered 1977.
- 262 Biopolymers in Solution (4) S**
Lecture, three hours. Thermodynamic and statistical methods used to study biopolymers. Both equilibrium and hydrodynamic methods are discussed, including viscosity, sedimentation, osmotic pressure, and light scattering. Same as Chemistry 262. Prerequisite: Chemistry 130A-B-C or Chemistry 131A-B-C.
- 263 Biochemical Dynamics (4) S**
Lecture, three hours. A discussion of the chemical mechanisms associated with enzyme function. Discussion of kinetics and multistep kinetics; active site factors and chemistry and biochemistry of cofactors. Same as Chemistry 263. Prerequisite: Biological Sciences 123, or Chemistry 130A-B-C, or Chemistry 131A-B-C. Not offered 1978.
- 280A-B-C Advanced Topics in Biochemistry and Molecular Biology (2-2-2) F, W, S**
Lecture, one and one-half hours. Selected topics in specified areas of concentration; e.g., nucleic acids, protein biochemistry, genetic expression, biochemical genetics. Specific topics will be announced in advance. Prerequisite: consent of instructor. Open to advanced undergraduates.
- 290A-B-C Colloquium in Molecular Biology and Biochemistry (2-2-2) F, W, S**
Colloquium, one and one-half hours. Presentation of contemporary research problems in molecular biology and biochemistry. Invited speakers will present research and/or review topics. Satisfactory/Unsatisfactory only.

Department of Psychobiology

Psychobiology is concerned with the biology of the nervous system and behavior. The Department of Psychobiology emphasizes the adaptive aspects of neural and behavioral plasticity. The faculty's research interests include the biochemical, endocrinological, genetic, and experiential deter-

minants of nervous system function and behavior. Focal topics include synaptic processes, neurophysiology, neuroendocrinology, neuroanatomy, neuropharmacology, arousal and attention, learning and memory, reproductive behavior, and communication. The importance of a developmental and comparative approach to these problems is stressed.

The Department of Psychobiology offers graduate training leading to the Ph.D. in Biological Sciences. Graduate students must complete a sequence of core courses (lectures and labs) during their first and second years. They also must take a minimum of four advanced courses before graduation and must participate in directed research and teaching each year. To advance to candidacy, the student must prepare a critical review paper in the area of the proposed thesis research and must pass an oral examination in psychobiology by the end of the third year. Graduation depends on successful preparation and oral defense of a thesis based on the student's research. Students are expected to complete this program in four years of study.

Ideally, applicants for this program should have taken undergraduate courses in biology (one introductory year plus some advanced work), psychology (experimental, physiological, and learning), chemistry through biochemistry, introductory physics, calculus, and statistics. They also must submit general aptitude GRE test scores. Because the graduate training emphasizes research, preference is given to applicants having laboratory research experience as undergraduates. The Department accepts only those students seeking a doctorate, though students who do not successfully complete their course work or do not advance to candidacy may, with the consent of the faculty, complete a Master's thesis and receive an M.S. degree in Biological Sciences. Applicants with substantial outside commitments that would curtail laboratory research or prolong the time to degree are not accepted. Students are encouraged to take the GRE no later than October. The deadline for application is February 1.

PARTICIPATING FACULTY

Norman M. Weinberger, *Chairman*: Neural bases of attention and learning
 Carl Cotman: Neurochemistry, molecular psychology
 Roland A. Giolli: Experimental neuroanatomy
 Robert K. Josephson: Invertebrate neurophysiology
 Herbert P. Killackey: Comparative and developmental neuroanatomy

Gary S. Lynch: Neural systems
 James L. McGaugh: Learning and memory
 Jon F. Sassin: Neuroendocrinology and sleep
 Arnold Starr: Neural bases of sensory process
 Richard F. Thompson: Neurophysiological bases of behavior
 Marcel Verzeano: Neurophysiology
 Jack C. Waymire: Neurochemistry, neuropharmacology
 Richard E. Whalen: Neural and endocrine bases of behavior
 Pauline I. Yahr: Analysis of animal behavior

COURSES IN PSYCHOBIOLOGY

200A-B-C Research in Psychobiology (2 to 6 per quarter) F, W, S
 Individual research supervised by a specific professor. Prerequisite: consent of instructor.

201A-B-C Seminar in Psychobiology (4-4-4) F, W, S
 Seminar, three hours. Advanced study of current topics in various areas of psychobiology. Topics will vary from quarter to quarter and from year to year. Prerequisite: consent of instructor. Not offered 1977-78.

202A-B-C Methods in Psychobiology (4-4-4) F, W, S
 Lecture, laboratory demonstration, discussion, three hours. Emphasizes classical as well as recent developments in psychobiological research methods and techniques. Prerequisite: consent of instructor. Not offered 1977-78.

Psychobiology Graduate Core 206A-B-C-D-E, 207A-B, 208A-B-C
 An integrated sequence in neurobiology and behavioral biology. Required of all graduate students in the Department of Psychobiology. Admission of other students by consent of the Director of Graduate Studies.

206A-B-C-D-E Graduate Core (4-4-4-2) F, W, S, F, W
207A-B Graduate Core (4-4) F, W

Lecture. A survey of fundamental topics in neurobiology and the biological bases of behavior. The following areas are included: comparative neuroanatomy, neurophysiology of single neurons and neural systems, neurochemistry, neuropharmacology, neuroendocrinology, sensory and motor processes, central regulatory mechanisms, evolution and development of behavior, sleep and wakefulness, learning and memory, attention, language, and cognition.

208A-B-C Graduate Core Laboratory (2-2-2) F, W, S
 Laboratory, six hours. Use of contemporary techniques in neurobiology and behavioral biology. Neuroanatomy: gross and microscopic techniques for analyzing neural tissue, including neurohistology with normal and experimental material. Neurochemistry: biochemical techniques for analysis of brain tissue, including separation and identification of cellular constituents. Neurophysiology: bioelectronics, electrophysiological methods for single units, multiple units, gross field potential, and the electroencephalogram.

220 Aspects of Primate Evolution (4) F of odd years

Lecture, two and one-half hours. The comparative anatomy of extant and extinct primates will be considered with particular reference to theories of primate evolution. Emphasis will be placed upon selected systems, such as the nervous and locomotor systems. Anatomical material will be presented.

240 Advanced Analysis of Learning and Memory (4) F of odd years

Lecture and seminar, three hours. Advanced analysis of contemporary research concerning the nature and neurobiological bases of learning and memory. Special emphasis is given to time-dependent processes involved in memory storage. Not offered 1977.

241 Advanced Analysis of Hormones and Behavior (4) W of even years

Lecture and seminar, three hours. Relationships which exist between endocrine secretions, the brain, and behavior. The biology of reproduction will be covered in detail as will the role of hormones in development stress and social behavior. Not offered 1978.

242 Advanced Analysis of Sleep (4) W of even years

Lecture and laboratory, three hours. A consideration of the physiology and pathology of sleep in both humans and non-humans. In addition to coverage of conceptual issues, students will learn to record and analyze electrophysiological records from sleeping subjects.

243 Advanced Analysis of Comparative and Developmental Neurobiology (4) S of odd years

Lecture and seminar, three hours. The vertebrate nervous system approached from both its phylogenetic and ontogenetic history. Emphasis will be given to contemporary experimental approaches to selected neuronal systems.

244 Advanced Neurochemistry (4) W of odd years

Lecture and seminar, three hours. Integrated survey of the chemical and physiological mechanisms of synaptic transmission. Selected topics include growth and modification of synaptic connections from a chemical viewpoint.

245 Advanced Biochemical Neuropharmacology (4) S of even years

Lecture and seminar, three hours. Study of molecular mechanisms of action of drugs affecting central nervous system. Basic mechanisms by which drugs alter synthesis, storage uptake, release, and catabolism of neural transmitters will be emphasized.

246 Advanced Analysis of Attention and Learning (4) F of even years

Lecture and seminar, three hours. Consideration of behavioral and neural aspects of attention. Examination of the concept of "attention" from a behavioral point of view and classical and current approaches to brain mechanisms which form the substrates of behavioral attention.

247 Advanced Integrative Neurobiology (4) S of even years

Lecture and seminar, three hours. Consideration of selected

topics in neurobiology in which multidisciplinary approaches have been used to analyze function.

250 Advanced Analysis of Brain and Behavior (4) S of even years

Analysis of basic mechanisms underlying behavioral modification and plasticity. Emphasis on processing involved in habituation, sensitization, and classical and instrumental conditioning.

251 Neurological Psychobiology (4) S of odd years

Presentation of problems of clinical neurology through patient presentation, examination, and discussion. Patients with lesion or defects at various levels of the nervous system will be examined.

252 Advanced Analysis of Animal Behavior (4) W of odd years

Lecture and seminar, three hours. Consideration of the nature and bases of animal behavior.

253 Advanced Analysis of Muscle and Other Effectors (4) F of even years

Biophysics and biochemistry of striated muscle, proteins of muscle and their organization, sliding filament model of muscle contraction, calcium as a regulator of contractile activity, structural organization of control systems, neurological control of contractile activity, muscle kinetics, and thermodynamics.

Note: consent of instructor required for seminar courses numbered 260-274. In order to earn four units of credit, three quarters must be taken. Partial credit may be earned for individual segments.

260 Seminar in Learning and Memory F, W, S**261 Seminar in Hormones and Behavior F, W, S****262 Seminar in Neural Networks F, W, S****263 Seminar in Comparative and Developmental Neurology F, W, S****264 Seminar in Neurochemistry F, W, S****265 Seminar in Biochemical Neuropharmacology F, W, S****266 Seminar in Neural Bases of Learning F, W, S****267 Seminar in Neural Systems F, W, S****268 Seminar in Neuroanatomy F, W, S****269 Seminar in Sleep and Neuroendocrinology F, W, S****271 Seminar in Auditory Neurophysiology F, W, S****272 Seminar in Neurophysiology of Behavior F, W, S****273 Seminar in Comparative Behavior F, W, S****274 Seminar in Brain and Behavior F, W, S****290 Colloquium in Psychobiology (1.3) F, W, S**

Lecture, three-fourths hour; discussion, three-fourths hour. Presentation of contemporary research problems in Psychobiology and related areas by invited speakers. Satisfactory/Unsatisfactory only.

Department of Medical Microbiology

Graduate instruction and research in medical microbiology, leading to the Ph.D. in Biological Sciences, is offered by the Department of Medical Microbiology, College of Medicine. The curriculum of the Department is designed to provide advanced training to individuals interested in microorganisms and cultured mammalian cells, the activities of viruses, the molecular biology of infectious agents, and metabolic and regulatory processes which are fundamental to the immune response. One purpose of this curriculum is to accelerate deployment of scientific skills against problems that have medical importance. The program consists of two types of activities. One of these is organized around formal and informal didactic work, while the second concentrates on research activities that have their emphasis on the molecular basis of immune and microbial activities.

It is recommended that the student's undergraduate preparation include courses in calculus, physical chemistry, and biochemistry. Before a graduate degree will be awarded, the student must demonstrate competence by course work and examination in biochemistry, physical chemistry, genetics, and various aspects of medical microbiology and immunology. During the first year, all students in the graduate program will be expected to spend approximately six weeks in various faculty members' laboratories with the aim of becoming familiar with the research approaches and the laboratory techniques employed in each specific research area. Graduate students are required to take graduate courses in biochemistry, and Medical Microbiology 210, 212, 213, and 214. Additional course work will reflect the interest of individual students. The major remaining requirement for the Ph.D. degree will be the satisfactory completion and oral defense of a dissertation consisting of original research carried out under the guidance of a faculty member.

PARTICIPATING FACULTY

Paul S. Sypherd, *Chairman*: Molecular biology of fungal morphogenesis; biochemistry of nucleic acids; assembly of ribosomes; microbial genetics
 Dennis D. Cunningham: Regulation of cell division; mammalian cell culture; DNA synthesis in mammalian cells
 Gale A. Granger: Immunology; lymphotoxins; cell culture biology

George A. Gutman: Immunology; the sites of antibody synthesis
 G. Wesley Hatfield: Molecular mechanisms of biological control systems; enzyme regulation in mammalian cells
 David T. Kingsbury: Viral nucleic acids; biochemistry of virus infection; molecular biology of infectious agents
 Stuart M. Krassner: Biochemistry of animal parasites
 Harris S. Moyed: Regulation of enzyme action and synthesis; action of antibiotics
 Eric J. Stanbridge: Mycoplasmas; genetics of cancer; medical microbiology
 James D. Watson: Immunology; control of proliferation and differentiation in the immune response
 Clifford A. Woolfolk: General microbiology and physiology; enzymology

COURSES IN MEDICAL MICROBIOLOGY

200A-B-C Research in Medical Microbiology (2 to 12 per quarter) F, W, S

Individual research supervised by a particular professor. Prerequisite: consent of instructor.

201A-B-C Research Topics in Medical Microbiology (4-4-4) F, W, S

Seminar, two hours. Seminars presented by graduate students and faculty of the Department which explore research topics in specialized areas of microbiology. These seminars provide the opportunity for students to gain experience in the organization, critical evaluation, and oral presentation of current research developments.

210A-B Medical Microbiology (4-4) W, S

Lecture, five hours; laboratory, three hours. This is an advanced course taught to medical students in the College of Medicine. Biochemical and genetic properties of infectious agents, the identification and behavior of pathogens, activities of toxins, chemotherapy, biochemical genetics of drug resistance, humoral and cell-mediated immunity, introduction to diagnosis, treatment and epidemiology of infectious diseases. Prerequisites: prior course work in microbiology and biochemistry and consent of instructor.

212 Microbial Physiology (4) S

Lecture, three hours. The structural and functional organization of cells, the metabolism of organisms with respect to energetics, biosynthesis, and nutrition, and the control of their proliferation and differentiation. Prerequisite: consent of instructor.

213 Genetics of Microorganisms (4) S

Lecture, four hours. A presentation of the mechanisms employed by microorganisms for gene transfer, and the genetics of bacteriophage and animal viruses. Emphasis will be on organisms which cause human disease including the properties of resistance factors, transmission of antibiotic resistance, and the genetic control of pathogenic factors. Prerequisites: prior courses in mi-

crobiology and biochemistry and consent of instructor. Not offered 1978.

214 Cell Culture Biology (4) F

Lecture, two hours; seminar, one hour. The use of animal cell cultures to study problems of differentiation, mutation, control of enzyme synthesis, control of DNA synthesis and cell division, transformation to malignancy by tumor viruses, radiation, chemical carcinogens, and the immune responses in cell culture. Prerequisite: consent of instructor.

215 Immunobiology and Immune Diseases (4) F

Lecture, three hours. Presents what is currently known about the induction of expression of immune reactivity and mechanisms and effects of immune reactions in the production of tissue lesions. In-depth coverage will be devoted to immunodeficiency diseases, transplantation immunology, tumor immunology, allergy, and autoimmune disease. Prerequisite: consent of instructor. Not offered 1977.

217 Medical Virology (4) W

Lecture, three hours. Animal viruses as elements of disease including the mechanism of infection at both the cellular and organismic level. Topics to be covered include comparative studies of various groups and the role of the immune response in virus infection. Prerequisite: consent of instructor.

218 Regulation and Metabolic Diseases (4) S of odd years

Lecture, three hours. In-depth study of the molecular mechanisms which control gene expression in both procaryotic and eucaryotic cells. Both specific and integrative control systems will be studied, and these mechanisms will be correlated with control and developmental phenomena. Aberrations of control mechanisms in metabolic diseases will be analyzed. Prerequisites: Molecular Biology 205A-B and consent of instructor. Same as Molecular Biology 234.

219 Molecular Mechanisms of Pathogenesis (4) W

Lecture, four hours. Analysis of biochemical and genetic determinants of antibiotic resistance, toxins, hemolysins, and other factors associated with virulence, and host-parasite interactions at the molecular level. Prerequisites: Medical Microbiology 210 and consent of instructor. Not offered 1978.

280A-B-C Advanced Studies in Medical Microbiology (2-2-2)

F, W, S

Discussion, two hours. Presented by various members of the faculty; will relate current laboratory research to the literature.

Department of Physiology

Graduate instruction and research in Physiology, leading to the Ph.D. in Biological Sciences, is offered by the Department of Physiology, College of Medicine. The Department provides research opportunities in the molecular biophysics of membranes and proteins, endocrinology, and the physiology of exercise, respiration, and the nervous system. The core curriculum provides the student with a broad background in physiology and the closely related fields of anatomy and biochemistry. Elective courses permit in-depth exploration of particular areas. Interdisciplinary dissertation research involving the background of more than one faculty member is encouraged.

Prerequisites for admission normally include a bachelor's degree in one of the biological sciences, physics, chemistry, mathematics, or engineering, as well as undergraduate courses in calculus, organic chemistry, physical chemistry, biochemistry, and neurophysiology (psychobiology). However, up to two of these undergraduate prerequisites may be taken as elective courses as part of the graduate program. The core program consists of two quarters of introduction to physiology, one quarter of human morphology, two quarters of graduate level biochemistry, one quarter of experimental surgery, two quarters of advanced physiology, and five elective courses. Students will receive training and experience in teaching and scientific writing.

In addition, during the first year students will spend one quarter in each of three different laboratories where they will become acquainted with the areas of research and experimental techniques employed. They also will attend the weekly colloquium in physiology.

A written comprehensive examination will be administered at the end of the second year. The examination will cover all the material presented in Introductory and Advanced Physiology, Anatomy, Biochemistry, and the student's chosen field of research. After successful completion of the comprehensive examination, students will take an oral examination covering their research. A committee for the purpose of administering this examination will be appointed by the Dean of the Graduate Division. Success in this examination is the basis for admission to candidacy.

The last two years in the program will be devoted to research with a minimum of formal course work. A dissertation will be presented in writing and defended in an oral examination.

Some faculty from the Department are members of an interdisciplinary biophysics and biophysical chemistry group. See page 79 for a description of the program.

PARTICIPATING FACULTY

Peter F. Hall, *Chairman*: Endocrinology; mechanisms of adrenal cancer; cytochrome P-450; testicular cells
 Edward R. Arquilla: Immunology and structure-function characteristics of protein hormones
 Kenneth M. Baldwin: Exercise physiology
 Alfred A. Buerger: Neurophysiology
 Berry Campbell: Physiology of sex
 Mihai C. Demetrescu: Central nervous system
 Robert I. Kohut: Physiology of the vestibular apparatus
 Jerry L. Osborne: Neural control of respiration
 Mu-ming Poo: Receptor movements on cell surface
 Jon F. Sassin: Neuroendocrinology of the sleep-waking cycle
 Arnold Starr: Neural basis of sensory process
 Lubomir J. Valenta: Mechanisms of hypothalamic hormones; thyroid physiology
 Stephen H. White: Membrane structure
 Archie F. Wilson: Mechanics of respiration; pathophysiology of asthma and air pollution

COURSES IN PHYSIOLOGY

- 206A-B Introduction to Medical Physiology (6-6) W, S**
 Lecture, four hours; discussion, two hours; other, two hours. Vertebrate physiology with emphasis on man and on the relationship between the function of normal tissues and the processes of disease. Emphasis is on the fundamental principles of physiology and the interrelationships which control organ function. Prerequisite: consent of the Department.
- 206C Experimental Surgery (4) Summer**
 Lecture, two hours; laboratory, six hours. Students will be introduced to the basic principles of experimental surgery and will perform a series of approximately ten experiments involving all of the major organ systems. Prerequisite: Physiology 206B.
- 206D Electrophysiologic Techniques (4 to 6) F**
 Discussion and laboratory, three hours. Students will perform classic experiments using electrophysiologic techniques. Prerequisite: consent of instructor.
- 206E Advanced Studies in Respiratory Physiology (4) W**
 Lecture and discussion, three hours. Critical review of selected

topics in respiratory physiology. Prerequisite: consent of instructor. May be repeated for credit. Not offered 1978.

- 206F Physiology of Exercise (4) S**
 Discussion and seminar, three hours. Focus will be on the acute and chronic effects of exercise on the various organ systems with emphasis on cardiovascular, respiratory, endocrine, and neuromuscular mechanisms. Prerequisite: Physiology 206B. Not offered 1978.
- 206G Vertebrate Endocrinology (4) F**
 Lecture, two hours. A course dealing with the mechanisms by which hormones regulate metabolic and other cellular functions. These presentations will deal with the primary data upon which current ideas on endocrinology are based. In addition, students will design new experiments based upon the latest available data. Prerequisite: consent of instructor.
- 206H Scientific Writing (4) S**
 Lecture, discussion, and seminar, three hours. Lecture will review the correct use of words, syntax, and sentence structure. The components of a scientific paper will be discussed with examples from the literature. Students will be expected to write parts of several papers from data provided and will write sections of papers already published. Prerequisites: Biological Sciences 101F and Physiology 206B. May be repeated for credit. Not offered 1978.
- 206I Advanced Neurophysiology (4) F**
 Discussion and laboratory, four hours. A study of physiology utilizing recording techniques and animal preparations (turtles, dogs) supplemented with studies on the students themselves. Respiratory patterns, heart rhythms, gastric motility, and brain waves will be observed and analyzed. Prerequisites: Physiology 206B and consent of instructor.
- 206J Advanced Physiology (4) F, W**
 Discussion and seminar, four hours. For advanced graduate students in physiology. A collection of original papers describing significant achievements in specific areas of physiology will be read each week and then discussed during a weekly four-hour meeting. The topics covered reflect the interest and skills of faculty. Prerequisites: Physiology 206B and consent of instructor.
- 206K Colloquium in Physiology (2-2-2) F, W, S**
 Seminar, one and one-half hours. Contemporary research problems in physiology. Research students, faculty, and other invited speakers will introduce research and review topics. Satisfactory/Unsatisfactory only. Prerequisite: consent of instructor.
- 206L Methods of Physiology Research (4-4-4) F, W, S**
 Lecture, eight hours. Introduction to current laboratory research techniques in physiology and related sciences. Students will concentrate on the techniques emphasized in the various laboratories of the Department of Physiology. Prerequisite: consent of instructor.
- 206M Research in Physiology (2 to 12 per quarter) F, W, S**
 Laboratory, two hours. Individual research supervised by a particular professor. Prerequisite: consent of instructor.

206N Membrane Biophysics (4) S

Lecture, discussion, and seminar, three hours. Introduction to the structure of biological membranes from the chemical-physical point of view. Basic biophysical techniques for studying membrane structure will be presented by lecture and discussion. Significant original papers will be read. Prerequisite: Chemistry 130A-B-C or Chemistry 131A-B-C. May be repeated for credit. Not offered 1978.

206O Electroencephalography: EEG Analysis of Experimental and Clinical Research (4) F

Lecture and discussion, four to six hours. Basics of the EEG method; discussion of various approaches to automated analysis; monitoring and investigation of sleep/waking/arousal in experi-

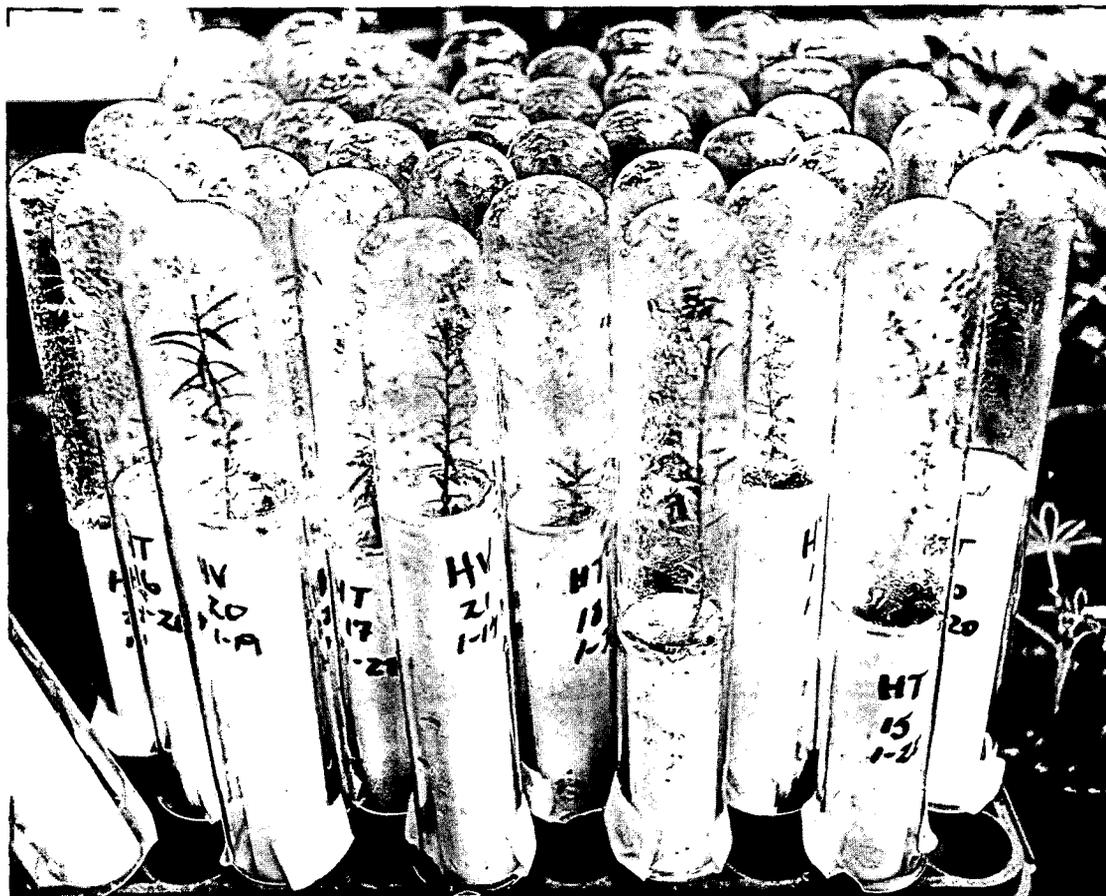
mental animals and in human subjects; EEG patterns and cortical excitability; epileptic activity; experimental induction and recording in animals and clinical electrographic patterns; current research topics. Prerequisite: Physiology 206B.

206P Somatosensory Neurophysiology (1) S

Seminar, two hours. The physiology of mammalian somatosensory systems. Considerations of peripheral receptors and central mechanisms. Prerequisites: Physiology 206B and Biological Sciences 160 or Biological Sciences 164.

208A-B-C Tutorials in Physiology (4) F, W, S

Advanced study in areas not represented by formal courses. Tutorial may involve individual or small group study through discussion, reading, composition, and laboratory experiences.



School of Fine Arts

Clayton Garrison Dean

The primary activity of the School of Fine Arts is creating and performing works of art in an atmosphere in which the creative process is central. We are committed to the creative act: to making and performing. A program based on such a commitment requires a faculty experienced in the creative process. The faculty in the School of Fine Arts is comprised primarily of permanent artists-in-residence. Studio courses in all areas are taught by eminent faculty who have earned their living professionally and who continue to maintain professional assignments and commitments.

In addition to the permanent artists-in-residence faculty, visiting artists have and will always comprise about one-third of the staff, providing a constant inflow of ideas and personalities. A variety of artists challenges the students' sensibilities and encourages them to think and to create freshly and freely.

This ideology focused on the creative process, the professional and scholar-performer faculty, and the individual's commitment and courage provides, we feel, an ideal condition for the serious student in the arts who wants to be painting, sculpturing, dancing, acting, singing, directing, choreographing, writing, or playing an instrument six to ten hours a day during the most sensitive and formative years of life. Our central concern is the development of a creative talent in an atmosphere of creative activity. In addition to programs concerned primarily with studio and performance activity, courses of study in the history and theory of the arts are offered as major areas of concentration.

Undergraduate majors are offered in History of Art, Studio Art, Dance, Drama, Music, and Fine Arts (General Interdis-

ciplinary or Film Studies). Requirements include extensive studio and workshop experiences, essential theoretical and historical backgrounds, and exercises in criticism. The requirements for all performing and studio majors in the fine arts are designed to provide opportunities for the student-artist to work creatively for at least four hours a day from the freshman year through graduation. Courses in film writing, filmmaking, and television are available in the Drama program. A student may major in Drama, with a primary concentration in the areas of film and television.

In addition to producing student concerts, musicals, and dramatic performances, the School of Fine Arts presents a varied offering of cultural events each year, including distinguished lecturers, world-renowned concert artists, outstanding dance and drama groups, jazz and folk performers, a film series, and a gallery program.

The Fine Arts Village includes studio and classroom space for the areas of studio art, art history, dance, drama, music, and film. Specialized facilities for the studio art area include an Art Gallery and six well-lighted studios for drawing, painting, sculpture, graphics, and ceramics. Power equipment for sculpture, two presses for graphics (intaglio), and two kilns for ceramics are available. The Village Theatre, conventionally designed, contains an orchestra pit, a large, completely equipped stage, and seating for 420 people. The Concert Hall, seating 230, has a thrust platform stage, a Baroque pipe organ, and excellent acoustics. The Studio Theatre provides an experimental stage base without fixed seats, allowing complete freedom in determining the style of production. The Little Theatre, located in Humanities Hall, is an intimate proscenium theatre for Drama Workshops and graduate directing projects. Campus television

studios are also located in the Village. Music students attend orchestra rehearsals in a special Village facility also utilized for choral and instrumental ensemble rehearsals. Practice rooms are equipped with Steinway practice pianos and Steinway concert grands. A music listening laboratory is also available to music majors.

The School of Fine Arts is organized as a School with areas of instruction and production, not with formal departments. The faculty generally meets as a whole one or two times a year. The faculty in each of the major areas of instruction (art history, studio art, dance, drama, music) nominates five students to the Dean's Student Advisory Council. The Dean selects two undergraduates and one graduate student from each area. These fifteen students comprise the Dean's Student Advisory Council for a term of one year. The Council meets about six times a year. This council reviews matters concerning appointments and promotions, curriculum, appropriations, policy on graduate admissions, productions and concerts, and community relations. There is no difference between undergraduate and graduate participation. The students act as an ad hoc review committee on all permanent appointments and on all recommendations for merit increases and promotions. Students in the School of Fine Arts are involved at a less formal level as participants, organizers, and coordinators throughout the year in the various productional units, including University Chorus, University Orchestra, University Chamber Symphony, University Theatre, Student Exhibitions, Graduate Art Gallery, Dance Concerts, Friday One O'Clock Concerts, Dance Workshop, Drama Workshop, Music Workshop, Film Production, and Television Production.

The opportunity is provided for all qualified UCI students to participate in the UCI Pep Band and Song Leaders, and to receive course credit for this participation. Those interested should see the instructor of Theatre Orchestra, Drama 173, about requirements for participation and enrollment in the appropriate course.

All new Fine Arts students are assigned or may choose their own faculty advisors and are encouraged to meet with them during orientation week and periodically throughout the year to plan programs of study and to discuss educational and career objectives. In addition, students are invited to make use of the counseling services in the Fine Arts Counseling Office for assistance with programs, requirements, or any academic matter.

Degrees

Dance	B.A.
Drama	B.A.
Fine Arts	B.A., M.F.A.
History of Art	B.A.
Music	B.A.
Studio Art	B.A.

Honors

Students who have distinguished themselves academically and who have made substantial contributions in performances or exhibitions will be considered for honors at graduation. In keeping with the Academic Senate Resolution, no more than 12% of the graduating seniors may receive honors.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: None (see under programs).

GRADUATE PROGRAM

The School of Fine Arts offers a program leading to the degree of Master of Fine Arts with concentrations in studio art, dance, drama, and music. The primary activity of the School of Fine Arts is performance — the creative act. Research activities are concerned with illuminating performance and inspiring the studio experience. The intellectual activity of theoretical, literary, and historical courses complements the practical work in studio workshops and performance. The aim of the program is, thus, to produce literate artists who are responsive to intellectual stimuli, who are capable of integrating knowledge into creative acts, and who are disciplined to the point of freedom. It is the strong belief of the School that intellectual integrity and professional excellence cannot exist without each other.

Admission to the Program

Applications are accepted for fall quarter admission only, and ordinarily must be completed by March 1 as the number of graduate students that can be admitted to the School of Fine Arts is limited. Applicants are advised to arrange for submission of portfolios, auditions, compositions, dossiers, and interviews, as appropriate, by March 1. Students applying for scholarships and fellowships should do so through the Graduate Division not later than February 1 for the following year. The School of Fine Arts has a modest number of teaching assistantships available in all areas, and all

candidates are automatically reviewed for teaching assistantship positions; the School informs successful candidates by June 1 for the following academic year.

Upon admission to the program the student will be assigned an advisor. The student should discuss with this advisor the scope of undergraduate preparation to determine any areas which may need strengthening if the student is to derive full benefit from graduate study.

History of Art

The program in the history of art is designed to provide a comprehensive study of art as a humanistic discipline. The program is concerned with understanding the function and characteristics of the monuments of civilization. Artists' intentions and achievements are studied in their historical settings. Students majoring in the history of art should select appropriate courses in classics, history, literature, and philosophy, as well as in other areas of the fine arts. All majors in the history of art are encouraged to study a second language beyond the minimum program requirement of two years in a single language at the university level.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: None.

Program Requirements

Art History Major: Art History 40A-B-C or any three courses from Art History 20A-B-C-D-E-F; nine upper-division courses in Art History, with at least one course in each of the following areas: Ancient (100, 100N, 101, 102), Medieval (103, 103N), Renaissance/Baroque (104, 104N, 105, 105N, 106, 106N, 107, 107N), and Modern (108, 108N, 109, 109N, 110N, 128, 129); two proseminars in Art History (198); two years in a single European language at university level (through 2C) or equivalent competence; three courses in Fine Arts outside the major (these courses may be taken Pass/Not Pass).

HISTORY OF ART FACULTY

Clayton Garrison, Ph.D. Stanford University, *Professor and Acting Chairman of Art History and Dean of the School of Fine Arts*

George Bauer, Ph.D. Princeton University, *Assistant Professor of Art History*

Linda Bauer, Ph.D. Institute of Fine Arts, New York University, *Assistant Professor of Art History*

Hara Georgiou, Ph.D. Bryn Mawr, *Assistant Professor of Art History*

Philip Leider, M.A. University of Nebraska, *Lecturer in Art History*

Steven Wander, Ph.D. Stanford University, *Assistant Professor of Art History*

LOWER-DIVISION COURSES IN HISTORY OF ART

20 Nature of Art

20A Prehistoric, Ancient, Pre-Columbian (4)

20B Greek, Roman, Early Christian (4)

20C Byzantine, Romanesque, Gothic (4)

20D Renaissance (4)

20E Baroque (4)

20F Eighteenth Century and Nineteenth Century (4)

35A-B-C Contemporary Artists (4-4-4) F, W, S

Materials and processes of contemporary artists. Same as Studio Art 35A-B-C.

40A-B-C History of Art (4-4-4) F, W, S

46 The Nature of Architecture (4)

UPPER-DIVISION COURSES IN HISTORY OF ART

Courses in the following 100-109 sequence will include such topics as: The Arts of Crete and Early Greece, Roman Architecture, Early Christian and Byzantine Art, Gothic Architecture, Italian Renaissance Sculpture, Baroque Painting, The Rococo, Impressionism, and Twentieth-Century Painting.

The topics within a given area may vary from quarter to quarter; hence if the topic varies each course may be repeated for credit. Art 40A-B-C (or any three courses from Art 20A-B-C-D-E-F) is *prerequisite* for courses 100-112.

100 Studies in Ancient Art (4)

Same as Classics 100.

101 Studies in Greek Art (4)

102 Studies in Roman Art (4)

103 Studies in Medieval Art (4)

104 Studies in Southern Renaissance Art (4)

105 Studies in Northern Renaissance Art (4)

106 Studies in Baroque Art (4)

- 107 Studies in Eighteenth-Century Art (4)
- 108 Studies in Nineteenth-Century Art (4)
- 109 Studies in Twentieth-Century Art (4)
- 110 Studies in American Art (4)
- 111 Studies in Primitive Art (4)
- 112 Studies in Oriental Art (4)

Art 40A-B-C is not prerequisite for the following courses:

- 100N Ancient Art (4)
 - 103N Medieval Art (4)
 - 104N Italian Renaissance (4)
 - 105N Northern Renaissance (4)
 - 106N Baroque (4)
 - 107N Eighteenth-Century Art (4)
 - 108N Nineteenth-Century Art (4)
 - 109N Twentieth-Century Art (4)
 - 110N Twentieth-Century Architecture (4)
 - 112N Oriental Art (4)
 - 127 History of Design (4)
 - 128 Art and Technology (4)
 - 129 New American Art (4)
 - 140 Criticism of Art (4)
- May be repeated for credit.

All advanced problems, special studies, and tutorial courses may be repeated for credit.

- 195 Art Museum Problems (4)
Same as Studio Art 195.
- 196 Tutorial in Art History (4)
- 198 Proseminar in Art History (4)

GRADUATE COURSES IN HISTORY OF ART

All graduate courses may be repeated for credit.

- 200 Bibliography and Research (4)
- 220 Seminar in Art History (4)
- 240 Graduate Projects (4)
- 250 Directed Reading (4)
- 260 Thesis (4)

Studio Art

The program in studio art provides basic studio experiences in the fundamental knowledge and techniques of drawing, painting, sculpture, ceramics, and graphic art, and a study of the history and criticism of art. The curriculum constantly relates studio practice to the development of the visual arts and current critical theory. It aims to develop a sense of visual awareness by as wide a range of the study of art as possible. The student majoring in art experiences the creative aspects of art by learning to think with the materials and techniques of the medium.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: None.

Program Requirements

Studio Major: Art Studio 30A-B-C; Art History 40A-B-C or any three courses from Art History 20A-B-C-D-E-F; one year in lower-division studio courses in sequence; three courses in history of modern art; 12 upper-division studio courses (Art Studio 145 through 194).

Master of Fine Arts Program

Degree Offered

M.F.A. in Fine Arts, with emphasis in studio art.

Admission

Applicants for admission to the degree program must meet the general requirements for admission to the Graduate Division, hold a B.A. or B.F.A. in Art, and submit a portfolio of their creative work. Normally, anyone who has earned an M.A. or M.F.A. degree in Studio Art will not be considered for admission into the program.

General Degree Requirements

Normally two years of residence is required. Each candidate must enroll for three courses each quarter for six quarters, exclusive of summer sessions.

The student's progress and body of work will be reviewed by a faculty committee, normally after three quarters in residence. A satisfactory opinion by this committee will allow the student to progress to candidacy for the degree.

Satisfactory attainment must be demonstrated by a specific

creative project. This project is to be supported by a thesis incorporating visual and written material relevant to the project and the candidate's creative research while at UCI. Oral defense of the project and essay may be required to test the candidate's general knowledge in the area in which the project falls.

Specific Degree Requirements

Seventy-two quarter units in graduate or approved upper-division undergraduate courses must be completed with a grade of at least B minus in each course. Not more than 20 units in upper-division courses may count towards the degree. Electives may be taken in any discipline. The 72 units will normally be made up in the following manner:

First Year: three courses in Graduate Problems (215); three seminars in Problems of Contemporary Art (230); three courses in Graduate Projects (240).

Second Year: two courses in Graduate Problems (215); three seminars in Problems of Contemporary Art (230); three courses in Graduate Projects (240); one course in Thesis (260).

STUDIO ART FACULTY

Melinda Wortz, M.A. University of California, Los Angeles,
Lecturer in Art, Director of the University Gallery, Chair of Studio Art

Ed Bereal, Chouinard Art Institute, *Lecturer in Studio Art*
Tony DeLap, San Francisco Academy of Art, *Professor of Studio Art*

John Paul Jones, M.F.A. University of Iowa, *Professor of Studio Art*

Craig Kauffman, M.F.A. University of California, Los Angeles, *Associate Professor of Studio Art*

John Mason, Chouinard Art Institute, *Professor of Studio Art*

LOWER-DIVISION COURSES IN STUDIO ART

30A-B-C Visual Arts Fundamentals

30A Fundamentals of Drawing and Pictorial Structure (4) F

30B Theory of Color and Two-Dimensional Design (4) W

30C Three-Dimensional Design (4) S

35A-B-C Contemporary Artists (4-4-4) F, W, S

Materials and processes of contemporary artists. Same as History of Art 35A-B-C.

50A-B-C Drawing (4-4-4) F, W, S

60A-B-C Painting (4-4-4) F, W, S

70A-B-C Sculpture (4-4-4) F, W, S

80A-B-C Graphic Art (4-4-4) F, W, S

86A-B-C Ceramics (4-4-4) F, W, S

UPPER-DIVISION COURSES IN STUDIO ART

All advanced problems, special studies, and tutorial courses may be repeated for credit.

145 Advanced Problems in Design (4)

Prerequisites: Art 30A-B-C.

150 Advanced Problems in Drawing (4)

Prerequisites: Art 30A-B-C and 50A-B-C.

160 Advanced Problems in Painting (4)

Prerequisites: Art 30A-B-C and 60A-B-C.

170 Advanced Problems in Sculpture (4)

Prerequisites: Art 30A-B-C and 70A-B-C.

180 Problems in Graphic Art (4)

185 Design and Typography (4)

186 Advanced Problems in Ceramics (4)

Prerequisites: Art 30A-B-C and 86A-B-C.

190 Studio Problems (4)

191 Studio in Drawing (4)

192 Studio in Painting (4)

193 Studio in Sculpture (4)

194 Studio in Graphic Art (4)

195 Art Museum Problems (4)

Same as Art History 195.

GRADUATE COURSES IN STUDIO ART

All graduate courses may be repeated for credit.

210 Graduate Studio: Painting (4)

211 Graduate Studio: Sculpture (4)

212 Graduate Studio: Ceramics (4)

214 Graduate Studio: Graphic Art (4)

215 Graduate Studio: Problems (4)

230 Seminar in Problems of Contemporary Art (4)

240 Graduate Projects (4)

250 Directed Reading (4)

260 Thesis (4)

Dance

The program in dance provides studio experiences in the fundamental knowledge and techniques of classical ballet and of contemporary dance movements. The classical academic approach to ballet adheres to those principles developed from Noverre through Petipa and Cecchetti modified to accommodate our current understanding of those laws of physics and of the human anatomy applicable to the study of dance. The workshops in contemporary dance explore and extend the various approaches to modern dance and jazz, concentrating on physiological and rhythmic problems encountered in contemporary choreography. Studies in preclassic dance forms and their musical structures provide additional workshop experience as well as significant research materials for choreographic problems. Theoretical and historical courses complement the practical work in workshops, choreography, and performance. The program is designed for students preparing to continue professionally as dancers, as choreographers, and as teachers, as well as for students who, while not planning to make the study of dance their vocation, have a serious interest in the theory, practice, and history of dance.

The traditional technique of classical ballet constitutes a craft and style that serves not only as a physiological center for the logical training of the body, but also as a basic language of movement for the choreographer. Workshop experiences build progressively on the techniques of ballet and extend through the contemporary idioms of jazz, modern, and freestyle. The aim is to develop kinetic resources, precision, flexibility, and freedom in an eloquently coordinated and intelligently responsive body.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: None.

Program Prerequisites

Basic ability in techniques of ballet and freestyle dance forms is prerequisite to declaring a major in dance. All students who desire to declare a major in dance must audition. At the end of the sophomore year, the faculty will meet to determine whether the student is making sufficient progress to qualify as an upper-division major. All advanced standing applicants to the University who have indicated an interest in majoring in dance will be notified by the School of the

date of audition, the successful completion of which is the authorization to declare a major in dance.

Inasmuch as the level of performance is generally determined by the length of time in study, all transfer students must anticipate meeting the total performance requirements for the B.A. degree. Students deficient in level of performance in comparison to their level of study should plan to extend their studies in order to meet performance requirements.

Program Requirements

Performing Major: Four years studio work in ballet (Dance 30A-B-C, 35A-B-C, 130A-B-C, 135A-B-C); three years studio work in freestyle (Dance 40A-B-C, 45A-B-C, and 140 for three quarters); two years studio work in jazz (Dance 50A-B-C, 55A-B-C); one year in theory (Dance 20A-B-C); one quarter of the nature of music (Music 20) and two quarters of music for dancers (Dance 120A-B); one course in dance notation (Dance 65A); three consecutive courses in history of dance (Dance 110A-B-C or 112A-B-C); three courses in choreography (Dance 155A-B-C); two courses in acting (Drama 30A-B); participation in dance performance (Dance 160).

Teaching, History, or Choreography Major: Three years studio work in ballet (Dance 30A-B-C, 35A-B-C, 130A-B-C); two years studio work in freestyle (Dance 40A-B-C, 45A-B-C); one year studio work in jazz (Dance 50A-B-C); one year in theory (Dance 20A-B-C); one quarter of the nature of music (Music 20) and two quarters of music for dancers (Dance 120A-B); three consecutive courses in history of dance (Dance 110A-B-C or 112A-B-C); three courses in dance notation (Dance 65A-B-C); three courses in choreography (Dance 155A-B-C); two courses in acting (Drama 30A-B); participation in dance performance (Dance 160).

Master of Fine Arts Program

Degree Offered

M.F.A. in Fine Arts, with emphasis in choreography or the teaching of dance.

Admission

Applicants for admission to the degree program must meet the general requirements for admission to the Graduate Division and hold a B.A. or B.F.A. in Dance. Candidates must meet the minimum requirements for the B.A. degree from the Irvine campus of the University of California.

Proof of practical ability in ballet, freestyle, and jazz dance forms must be provided by personal audition.

General Degree Requirements

Normally two years of residence is required. Each candidate must enroll for three courses each quarter for six quarters, exclusive of summer sessions.

Normally after three quarters in residence, students must demonstrate satisfactory progress by the presentation of a choreographic project. Acceptable completion of this project will allow the student to progress to candidacy for the degree.

Satisfactory attainment must be demonstrated by a major production thesis: in choreography this would be the composition and production of a choreographic work; in teaching this would be a practical and comprehensive project concerned with the teaching of dance. Either the production thesis or the teaching project must be supported by a written paper of about 20 pages. The production or project and supporting paper are to be defended in a one-hour oral examination which may also test the candidate's general knowledge in the area;

or

a written thesis of about 75 pages in a chosen area of research must be prepared. This thesis is to be defended in a one-hour oral examination which may also test the candidate's general knowledge in the area.

Candidates presenting a written research thesis are required to demonstrate a reading knowledge of French. Subject to faculty approval this knowledge may be demonstrated by: Educational Testing Service Foreign Language Test; an examination administered by the faculty; or satisfactory completion of a course at a specified level.

Specific Degree Requirements

Seventy-two quarter units in graduate or approved upper-division undergraduate courses must be completed with a grade of at least B minus in each course. Not more than 20 units in upper-division courses may count towards the degree. Electives may be taken in any discipline. The 72 units will normally be made up in the following manner:

First Year: three courses in Dance and Related Arts (220); three courses in Teaching of Dance (231); three courses (12 units) in Graduate Ballet, Freestyle, or Jazz (210, 211, 212); two courses in Graduate Projects (240), or two courses in Thesis (260).

Second Year: three courses in Dance and Related Arts (220); two courses (eight units) in Graduate Ballet, Freestyle, or Jazz (210, 211, 212); two courses in Graduate Projects (240), or two courses in Thesis (260).

DANCE FACULTY

Eugene Loring, *Professor of Dance and Chairman of Dance*
 Victoria Barrett, *Lecturer in Dance*
 Roy Fitzell, *Lecturer in Dance*
 El Gabriel, *Lecturer in Dance*
 Jack Kauflin, *Lecturer in Dance*
 Olga Maynard, *Associate Professor of Dance*
 Carol McGahan, *Lecturer in Dance*
 James Penrod, M.F.A. University of California, Irvine, *Associate Professor of Dance*
 Janice Gudde Plastino, Ph.D. University of Southern California, *Associate Professor of Dance*
 Barbara Plunk, *Lecturer in Dance*
 Eva Ralf-Howard, *Lecturer in Dance*
 Paul Shipton, *Lecturer in Dance*
 Antony Tudor, Associate Director, American Ballet Theatre, *Lecturer in Dance*

LOWER-DIVISION COURSES IN DANCE

20A-B-C Theories of Dance (4-4-4)

Open only to students enrolled in workshop courses.

30A-B-C Studio Workshop in Ballet I (2-2-2)

35A-B-C Studio Workshop in Ballet II (2-2-2)

Prerequisites: Dance 30A-B-C (Ballet I).

40A-B-C Studio Workshop in Freestyle I (2-2-2)

45A-B-C Studio Workshop in Freestyle II (2-2-2)

Prerequisites: Dance 40A-B-C (Freestyle I).

50A-B-C Studio Workshop in Jazz I (2-2-2)

Prerequisites: Dance 40A-B-C.

55A-B-C Studio Workshop in Jazz II (2-2-2)

Prerequisites: Dance 50A-B-C (Jazz I).

65A-B-C Dance Notation (4-4-4)

Prerequisite: One year in a studio workshop course.

UPPER-DIVISION COURSES IN DANCE

110A-B-C History of World Dance (Prehistoric to Contemporary) (4-4-4)

Offered alternate years with Dance 112A-B-C.

112A-B-C History of Theatre Dance (Renaissance Ballet to Contemporary) (4-4-4)

Offered alternate years with Dance 110A-B-C.

120A-B Music for Dancers (4-4)

Offered alternate years.

- 125 **Criticism of Dance (4)**
May be repeated for credit. Prerequisites: Dance 112A-B-C.
- 130A-B-C **Advanced Studio Workshop in Ballet III (2-2-2)**
Prerequisites: Dance 35A-B-C (Ballet II).
- 135A-B-C **Advanced Studio Workshop in Ballet IV (2-2-2)**
Prerequisites: Dance 130A-B-C (Ballet III).
- 140 **Advanced Studio Workshop in Freestyle (2)**
May be repeated for credit. Prerequisites: Dance 45A-B-C (Freestyle II).
- 150 **Advanced Studio Workshop in Jazz (2)**
May be repeated for credit. Prerequisites: Dance 55A-B-C (Jazz II).
- 155A-B-C **Choreography I (4-4-4)**
- 160 **Dance Performance (4)**
May be repeated for credit.
- 170 **Ethnic Dance of Eastern Cultures (2)**
May be repeated for credit.
- 175 **Ethnic Dance of Western Cultures (2)**
May be repeated for credit.
- 180A-B-C **Choreography II (4-4-4)**
- 185A-B-C **Choreography III (4-4-4)**
- 190 **Studio Tutorial in Ballet (2)**
May be repeated for credit. Prerequisites: Dance 130A-B-C (Ballet III).
- 191 **Studio Tutorial in Freestyle (2)**
May be repeated for credit. Prerequisite: Dance 140 (Advanced Studio Workshop in Freestyle).
- 192 **Studio Tutorial in Jazz (2)**
May be repeated for credit. Prerequisite: Dance 150 (Advanced Studio Workshop in Jazz).
- 193 **Studio Tutorial in Choreography (4)**
May be repeated for credit. Prerequisites: Dance 185A-B-C (Choreography III).
- 194 **Tutorial in History of Dance (4)**
May be repeated for credit. Prerequisites: Dance 110A-B-C, 120A-B-C, 180A-B-C.
- 195 **Tutorial in Dance Notation (4)**
May be repeated for credit.
- 198 **Dance Workshop (4)**
May be repeated for credit.

GRADUATE COURSES IN DANCE

All graduate courses may be repeated for credit.

- 200 **Bibliography and Research (4)**
- 210 **Graduate Studio: Ballet (2)**
- 211 **Graduate Studio: Freestyle (2)**

- 212 **Graduate Studio: Jazz (2)**
- 213 **Graduate Studio: Choreography (4)**
- 220 **Seminar in Dance History (4)**
- 230 **Seminar in Theories of Dance (4)**
- 231 **Seminar in the Teaching of Dance (4)**
- 240 **Graduate Projects (4)**
- 250 **Directed Reading (4)**
- 260 **Thesis (4)**

Drama

The program leading to the Bachelor of Arts in Drama provides the professional training and the liberal study essential to attaining the highest standards in theatre. Each major in drama experiences exacting and rigorous training in the mutually interrelated areas of the theatre: performance, design, literature, history, and criticism. The curriculum constantly relates studio practices, technical resources, and productional techniques to the development of dramatic literature and current critical theory. The student specializes during the last two years of study in acting, directing, scene design, costume design, or criticism. Majors in drama are expected to undertake extensive studies in art, dance, and music.

The continuous production of plays, musicals, operettas, and operas constitutes the major activity of the program. Students are treated as members of a theatrical organization, and they acquire experiences in all phases of theatrical production in a professionally disciplined atmosphere. Dramatic production centers on an exhaustive analysis of the script and on the challenge of communicating the complexities of the plan to an audience in a unified and meaningful production.

The program is designed for students preparing to continue professionally as actors, directors, designers, critics, and teachers, as well as for students who, while not planning to make the study of theatre their vocation, have a serious interest in the literature, theory, and practice of drama.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: None.

Program Requirements

One year survey in the development of dramatic literature (Drama 40A-B-C); one year in acting (Drama 30A-B-C); one year in design (Drama 50A-B-C); two upper-division courses in dramatic literature; six upper-division courses in addition to the two in dramatic literature mentioned above (these may be in studio work and/or in dramatic literature, play-writing, film writing, filmmaking, television production, and criticism); two quarters in dance (these courses may be taken on Pass/Not Pass); participation (acting or technical) in at least one University Theatre or Drama Workshop production a year (Drama 100, 101, 198).

Master of Fine Arts Program

Degree Offered

M.F.A. in Fine Arts, with emphasis in acting, directing, or design.

Admission

Applicants for admission to the degree program must meet the general requirements for admission to the Graduate Division and hold a B.A. or B.F.A. in Drama with undergraduate training roughly comparable to the UCI undergraduate program in drama.

By March 1 applicants must submit dossiers of biographical information and theatrical experience together with photographs, essays, reviews, production books, and portfolios, as appropriate.

Normally an audition and interview with members of the UCI drama faculty are required.

General Degree Requirements

Normally two years of residence is required. Each candidate must enroll for three courses each quarter for six quarters, exclusive of summer sessions.

During the first year of residence each candidate will prepare, for credit, two graduate projects, in either acting, directing, design, theatrical research, or a combination of two of these. Satisfactory completion of these projects, as determined by the faculty, is prerequisite to entering the second year of the program.

During the second year of the program, the candidate will be examined on general familiarity with the history of the theatre and the principal works of dramatic literature. An assigned list of books and plays will form the basic syllabus of this examination.

The required thesis normally consists of directing, designing, or playing a principal role in a major production, and collecting in essay form the evidences of research, analysis, and judgments which formed a part of the production experience.

Each graduate student is expected to participate in productions throughout residence at UCI.

Seventy-two quarter units in graduate or approved upper-division undergraduate courses must be completed with a grade of at least B minus in each course. Not more than 20 units in upper-division courses may count towards the degree. Specific course requirements must be satisfied in one of the following three areas:

Directing

Six graduate studios in directing (211)
 Three graduate seminars (220, 221, 222, or 230)
 Four graduate projects (240). One of these is the thesis project.
 One course graduate acting (210)
 One course stage management (171). This course must be taken the first quarter in residence.
 Three elective courses
 Stage management of one major or workshop production, or assistant stage management of one major production, before the thesis is undertaken.

Acting

Six graduate studios in acting (210)
 Three graduate seminars (220, 221, 222, or 230)
 Four graduate projects (240). One of these is the thesis project.
 One course directing (170)
 Four elective courses

Design

Five graduate studios in design (255)
 Three graduate seminars (220, 221, 222, or 230)
 Four graduate projects (240). One of these is the thesis project.
 One course directing (170)
 Two courses, graduate theatre production (201)
 Three elective courses

DRAMA FACULTY

Robert S. Cohen, D.F.A. Yale University, *Professor of Drama and Chairman of Drama*

- Richard Triplett, Otis Art Institute, *Professor of Drama and Chairman of Theatre Design*
 Ian Bernard, *Lecturer in Drama*
 Ashley Carr, M.F.A. Yale University, *Associate Professor of Drama*
 Stuart Duckworth, M.F.A. University of California, Irvine, *Lecturer in Drama*
 Cameron Harvey, M.F.A. University of California, Irvine, *Assistant Professor of Drama*
 Brewster Mason, Royal Shakespeare Company, *Lecturer in Drama*
 David McDonald, Ph.D. Stanford University, *Assistant Professor of Drama*
 William Needles, Stratford Shakespearean Festival, *Lecturer in Drama*
 Thomas Ruzika, M.F.A. University of California, Irvine, *Lecturer in Drama*

LOWER-DIVISION COURSES IN DRAMA

- 20 The Nature of Drama: Structure and Style (4)
 25 Shakespeare (4)
 30A-B-C Acting
 30A Movement, Improvisation, Theatre Games (4) F
 30B Characterization and Scenes (4) W
 30C Performance Technique (4) S
 32 Playwriting (4)
 Same as English WR 32.
 40A-B-C Development of Drama
 Same as Comparative Literature 40A-B-C.
 40A Greek Drama through Shakespeare (4) F
 40B Restoration Drama through Ibsen (4) W
 40C Contemporary Drama (4) S
 50 Introduction to Theatre Design
 50A Costume Design (4)
 50B Scenic Design (4)
 50C Lighting Design (4)
 50D Make-up Design (4)
 55A-B History of Theatre Design (4-4)

UPPER-DIVISION COURSES IN DRAMA

- 100 University Theatre (4)
 May be repeated for credit.
 101 Theatre Production (4)
 Production experience based on observation and participation in the theatre organization: costume production, scenic produc-

tion, lighting production, sound production, stage management.
 May be repeated for credit.

- 103 Lectures in Dramatic Literature (4)
 May be repeated, provided topic changes. Courses include Medieval and Tudor Drama, Elizabethan and Jacobean Drama, Shakespeare, Restoration and Eighteenth-Century Drama, Modern British Drama, Modern American Drama, Tragedy, and Comedy. Same as English 103.
 104 Greek Drama (4)
 May be repeated for credit, provided topic changes.
 109 History of Film (4)
 May be repeated for credit, provided topic changes.
 112 Advanced Playwriting (4)
 Same as English WR 112. May be repeated for credit. Prerequisite: Drama 32.
 114 Film Writing (4)
 May be repeated for credit.
 115A-B-C Filmmaking (4-4-4)
 Prerequisite: interview with instructor.
 116 Film Criticism (4)
 May be repeated for credit, provided topic changes.
 117 Russian Stage and Film Drama (4)
 Same as Russian 130.
 120A-B History of Design in Theatre (4-4)
 130 Advanced Acting (4)
 May be repeated for credit. Prerequisites: Drama 30A-B-C and audition.
 132A-B-C Speech for the Theatre (4-4-4)
 A course aimed at 1) improving natural, clear, unaffected speech and 2) eliminating negative habits and regional accents: exercises for physical tension, vocal support, tone production, vocal quality, and articulation.
 140 Contemporary American Drama (4)
 141 Contemporary British Drama (4)
 142 Contemporary Continental Drama: Theatre of the Absurd (4)
 143 Realism and Revolt: Ibsen to O'Neill (4)
 150A-B-C Production Theory and Technique: Costume (4-4-4)
 F, W, S
 Prerequisite: Drama 50A.
 151A-B-C Production Theory and Technique: Scenery (4-4-4)
 F, W, S
 Prerequisite: Drama 50B.
 152 Production Theory and Technique: Lighting (4)
 Prerequisite: Drama 50C.
 155 Studio in Theatre Design (4)
 May be repeated for credit. Prerequisites: Drama 50A-B-C and Drama 55A-B, or consent of instructor.

- 156 **Project in Theatre Design (4)**
May be repeated for credit.
- 159 **Proseminar in Theatre Design (4)**
May be repeated for credit.
- 165 **Music Theatre Workshop (4)**
May be repeated for credit.
- 166 **History of Operetta and Musical Theatre (4)**
- 170 **Directing (4)**
May be repeated for credit.
- 171 **Theatre and Stage Management (4)**
- 172 **Contemporary Theories on Play Directing (4)**
- 173 **Theatre Orchestra (4)**
Same as Music 173. May be repeated for credit.
- 174 **Acting-Directing Workshop (4)**
May be repeated for credit.
- 175 **Staging Shakespeare (4)**
May be repeated for credit.
- 180 **Dramatic Criticism (4)**
May be repeated for credit.
- 182 **History of Dramatic Criticism (4)**
- 185 **Advanced Directing (4)**
May be repeated for credit.
- 186 **Projects in Filmmaking (4)**
May be repeated for credit. Prerequisites: Drama 115A-B-C and consent of instructor.

The following courses may be repeated for credit:

- 190 **Studio in Acting (4)**
- 191 **Studio in Directing (4)**
- 192 **Proseminar in Film Criticism (4)**
Same as Fine Arts 192.
- 194 **Criticism (4)**
- 195 **Television Production (4)**
- 196 **Projects in Television (4)**
- 197 **Dramatic Literature (4)**
- 198 **Drama Workshop (4)**

GRADUATE COURSES IN DRAMA

All graduate courses may be repeated for credit.

- 200 **Bibliography and Research (4)**
- 201 **Graduate Theatre Production (4)**
- 210 **Graduate Studio: Acting (4)**
- 211 **Graduate Studio: Directing (4)**
- 212 **Graduate Studio: Playwriting (4)**
- 214 **Graduate Studio: Film Writing (4)**

- 215 **Graduate Studio: Filmmaking (4)**
- 220 **Seminar in Dramatic Literature (4)**
- 221 **Seminar in Criticism (4)**
- 222 **Seminar in Theatre History (4)**
- 230 **Seminar in Contemporary Theatre (4)**
- 240 **Graduate Projects (4)**
- 250 **Directed Reading (4)**
- 255 **Graduate Theatre Design (4)**
- 260 **Thesis (4)**

Music

The program for the Bachelor's Degree in Music is designed for two main classes of students: those who wish to obtain a sound background in music leading to a terminal degree and those who wish to obtain a thorough preparation for undertaking graduate work in one or more of four broad fields: musicology, composition, music performance, and teaching. The program provides intensive training in three mutually dependent areas as related components of a total musical experience: performance and musicianship, the theory of music, and the history of music. A knowledge of all three of these areas is indispensable and minimal for a successful career in music.

Beyond the specific goals outlined above and the requirements listed below, the student in music, through cooperative programs undertaken in conjunction with the other arts, achieves an awareness of the relationship of music to those other arts and of the various roles of music in society, both past and present.

Entrance Requirements

The student will be given an entrance examination at the commencement of the freshman year to determine whether the student meets the requirements of the program as stated below. After two years, the faculty will meet to determine whether the student is making sufficient progress to qualify as an upper-division music major. All transfer students are required to audition for the music faculty and receive permission before declaring themselves as music majors.

Voice Majors

At least two years private study and/or participation in

choral or orchestral ensemble and facility at the keyboard are recommended. Background in Italian, French, and German art songs is recommended.

Piano Majors

The requirements for an entering piano major are that the candidate should have mastered a Haydn or Mozart sonata, a two-part invention of Bach, and all the major and minor scales and arpeggios.

Woodwind Majors: flute, oboe, clarinet, bassoon

Sustained tone production, precise intonation over a dynamic range from *pianissimo* to *fortissimo*, control of breath, tongue, and double and triple tongue attacks over the entire range of the instrument, all major and minor scales and arpeggios *legato* and *staccato* commensurate with the range and technique of the instrument are required. The student should be able to play and read a repertoire of a difficulty comparable to the earlier symphonies of Haydn, Mozart, Beethoven, and Schubert and should demonstrate knowledge of the sonata literature for the particular instrument.

Brass Majors: French horn, trumpet, trombone, tuba

Requirements are essentially the same as for woodwinds.

Percussion Majors

Mastery of rudimentary drum techniques and a knowledge of the piano comparable to grade three is required.

String Majors: violin, viola, violoncello, double bass

Clear tone production, precise intonation with and without vibrato, controlled vibrato, slurred, *detaché*, *louré*, *staccato*, and simple *spiccato* bow strokes, knowledge of all major and minor scales and arpeggios are highly desirable. The student should also be able to satisfy the same general repertoire requirements listed above under woodwinds.

Guitar and Lute Majors

The entering requirements are: the mastery of all major and minor scales and etudes such as those of Fernando Sor to demonstrate the ability to play arpeggios, chords, slurs, and the rest stroke cleanly and with good tone; the ability to sight-read single lines on all parts of the fingerboard, and simpler pieces in more than one part up to the fifth position; the ability to demonstrate knowledge of repertoire from different periods, and to perform at least one extended work (sonata, suite, theme and variations, etc.). Prior knowledge of the lute is desirable but not essential.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: None.

Program Requirements (General)

Entering majors are expected to have competence in the practice of music: in reading and performing. At the end of the sophomore year, the faculty will meet to determine whether the student is making sufficient progress to qualify as an upper-division major.

All transfer students must take placement examinations. Basic to the program for all majors is command of piano: the performance at sight of moderately difficult works. Students must demonstrate this skill, by examination, no later than the end of the first quarter of the junior year.

Performance requirements include private study, vocal or instrumental, a senior recital, and participation in the chorus or various music ensembles during each quarter of the student's four years.

Program Requirements (Specific)

Two years work in theory (Music 30A-B-C, 130A-B-C); two years work in musicianship (Music 5A-B-C, 15A-B-C; Music 5A-B-C to be taken concurrently with 30A-B-C and Music 15A-B-C to be taken concurrently with 130A-B-C); one year in history and literature of music (Music 40A-B-C) to be preceded by Music 30A-B-C; one year in counterpoint (Music 135A-B-C); two courses in analysis (Music 155A-B); one upper-division course in history and criticism of music (Music 140 through 145, 152A-B-C); instrumental or vocal instruction each quarter of residence (Music 165, 166, 167, 168, 190); command of piano; a senior recital. All music majors who are studying an orchestra or band instrument, or the piano, are required to enroll in two sections of Instrumental Ensemble each quarter of residence (Music 160, Lab. 1, 2, 3, 4, 5, 6, 7). All music majors studying voice are required to enroll in both sections of Choral Ensemble (Music 162, Lab. 1, 2) each quarter of residence.

Master of Fine Arts Program

Degree Offered

M.F.A. in Fine Arts, with emphasis in composition, voice, choral conducting, or musicology.

Admission

Applicants for admission to the degree program must meet

the general requirements for admission to the Graduate Division and hold a B.A. or a B.M. in Music, or the equivalent.

A composition or audition (or a recorded demonstration of performance) must be submitted if applying for the program in composition or in performance. Applicants must also submit an eight to ten page paper on a musical subject (analytical, theoretical, historical); this requirement may be fulfilled by the submission of an undergraduate term paper.

Applicants must demonstrate their knowledge of basic musical tools: ear training, sight singing, written and keyboard harmony, dictation, score reading, and minimal facility at the piano (including sight reading). Applicants must submit proof of at least two years college study of at least one of the following languages: French, German, Italian.

General Degree Requirements

Normally, two years of residence is required. Each candidate must enroll for three courses each quarter for six quarters, exclusive of summer sessions.

Reading knowledge of two languages other than English (French, Italian, German, Latin) must be demonstrated by a written examination administered by the music faculty. Ability in one of these languages must be demonstrated before the candidate may schedule the comprehensive examination.

Comprehensive examinations are normally undertaken after three to four quarters in residence as a prerequisite to candidacy for the M.F.A. A student failing these examinations may reschedule them once in the following quarter.

Participation in performance at UCI throughout residence is required.

Specific Degree Requirements

Seventy-two quarter units in graduate or approved upper-division undergraduate courses must be completed with a grade of at least B minus in each course. Not more than 20 units in upper-division courses may count towards the degree. Specific course requirements must be completed in one of the following three areas:

Composition: two courses in bibliography; two seminars in history; two courses in elementary composition; two courses in intermediate composition; two courses in advanced composition; three courses in graduate projects; five electives; preparation of a project in composition, supported by a written essay of about 20 pages.

Voice or Choral Conducting: two courses in bibliography; two tutorials (first year); two courses in diction and performance; two seminars in vocal literature; one tutorial (second year); one course in diction and preparation; two courses in thesis preparation; three courses in graduate projects; four electives; preparation of a project in performance, supported by a written essay of about 20 pages.

Musicology: two courses in bibliography; one course in notation; five seminars in history; two courses in thesis preparation; two courses in directed reading; one course in graduate projects; five electives; preparation of an essay (thesis) of about 75 pages in an area of musical research.

MUSIC FACULTY

H. Colin Slim, Ph.D. Harvard University, *Professor of Music and Chairman of Music*

Charles Atkinson, Ph.D. University of North Carolina, *Assistant Professor of Music*

Hayden Blanchard, Voice, M.M. Louisiana State University, *Lecturer in Music*

Nancy Bramlage Ewing, Voice, B. Mus. Eastman School of Music, *Lecturer in Music*

Alvaro Cassuto, Licenciatura em Direito, University of Lisbon; Kapellmeister, Vienna Conservatory of Music, *Professor of Music and Conductor of the University Orchestra*

Sidney Harth, Violin, Concert Master and Associate Conductor, Los Angeles Philharmonic Orchestra, *Lecturer in Music and Coordinator of Program for Strings*

William Holmes, Ph.D. Columbia University, *Professor of Music and Associate Dean of the School of Fine Arts*

Newell Jenkins, B. Mus. Yale University, Conductor of Clarion Concerts, New York City, *Lecturer in Music*

Arnold Juda, Piano, Music-Lyceum Amsterdam, *Lecturer in Music*

Irvin Kimber, *Lecturer in Music*

Margaret Murata, Ph.D. University of Chicago, *Assistant Professor of Music*

Peter Odegard, Ph.D. University of California, Berkeley, *Professor of Music*

TUTORIAL FACULTY

Martha Ellis, Flute, *Lecturer in Music*

Jerry Epstein, Viola, Los Angeles Philharmonic Orchestra, *Lecturer in Music*

James Kanter, Clarinet, *Lecturer in Music*

Frederick Noad, Guitar and Lute, *Lecturer in Music*

Ami Porat, Double Bass, *Lecturer in Music and Assistant Conductor of the University Orchestra*
 James Stamp, Trumpet, *Lecturer in Music*
 Lori Ulanova, Violin, Los Angeles Philharmonic Orchestra, *Lecturer in Music*
 David Weiss, Oboe, Los Angeles Philharmonic Orchestra, *Lecturer in Music*
 Mary Lou Zeyen, Cello, Los Angeles Philharmonic Orchestra, *Lecturer in Music*

Additional professional staff in instrumental music will supplement the staff in accordance with the needs of the program.

LOWER-DIVISION COURSES IN MUSIC

5A-B-C Musicianship I (2-2-2)

To be taken concurrently with Music 30A-B-C.

10 Basic Piano (2)

For music majors only. May be repeated for credit.

15A-B-C Musicianship II (2-2-2)

To be taken concurrently with Music 130A-B-C.

20 Nature of Music (4)

The topics will vary from quarter to quarter. The course may be repeated for a different topic.

30A-B-C Theory (4-4-4)

To be taken concurrently with 5A-B-C.

40A-B-C History and Literature of Music

Prerequisite for music majors only: Music 30A-B-C.

40A Medieval and Renaissance (4) F

40B Baroque and Classical (4) W

40C Romantic and Contemporary (4) S

50A-B-C Composition (4-4-4)

65 Literature for Keyboard (2)

66 Literature for String Instruments (2)

67 Literature for Wind Instruments (2)

68 Vocal Literature (2)

UPPER-DIVISION COURSES IN MUSIC

130A-B-C Theory II (4-4-4)

To be taken concurrently with Music 15A-B-C.

135A-B-C Counterpoint (4-4-4)

Offered alternate years with Music 155A-B.

138A-B-C Fugue (4-4-4)

Courses in the following 140-145 sequence are for music majors and will include such topics as: The Motet in the Thirteenth and Fourteenth Centuries, Renaissance Key-

board Music, The Cantatas of Bach, The Eighteenth-Century Symphony, Early Romantic Opera, Schoenberg, Bartok, and Stravinsky. The topics will vary from quarter to quarter; hence if the topic varies each course may be repeated for credit. In addition, special courses in the 140-145 series numbered N are also offered for nonmajors.

140 Studies in Medieval Music (4)

141 Studies in Renaissance Music (4)

142 Studies in Music of the Baroque Period (4)

143 Studies in Music of the Classical Period (4)

144 Studies in Music of the Romantic Period (4)

145 Studies in Music of the Twentieth Century (4)

150 Advanced Composition (4)

May be repeated for credit.

152A-B-C History of Opera (4-4-4)

155A-B Analysis (4-4)

Offered alternate years with Music 135A-B-C.

All courses in the 160-169 sequence may be repeated for credit.

160 Instrumental Ensemble (4)

University Orchestra, Wind Ensemble, Brass Ensemble, Chamber Ensemble, Instrumental Performance, Piano Repertory, and Guitar Workshop.

162 Choral Ensemble (4)

University Chorus and Studio in Performance.

163 Vocal Performance (2)

(By audition only.)

164 Opera Workshop (2)

165 Advanced Literature for Keyboard (2)

166 Advanced Literature for String Instruments (2)

167 Advanced Literature for Wind Instruments (2)

168 Advanced Vocal Literature (2)

169 Conducting (4)

170 Orchestration (4)

171 Chamber Singers (2)

172 Chamber Orchestra (2)

173 Theatre Orchestra (4)

Same as Drama 173.

180 Music Criticism (4)

190 Studio Tutorials in Music (2)

Piano, strings, winds, voice, conducting, guitar, lute, percussion.

191 Tutorial in Music (4)

May be repeated for credit.

198 Music Workshop (4)

May be repeated for credit.

GRADUATE COURSES IN MUSIC

All graduate courses may be repeated for credit.

- 200 Bibliography and Research (4)
- 210 Graduate Studio: Vocal Literature (4)
- 211 Graduate Studio: Instrumental Literature (4)
- 212 Graduate Studio: Composition (4)
- 220 Seminar in History of Music (4)
- 230 Seminar in Contemporary Music (4)
- 240 Graduate Projects (4)
- 250 Directed Reading (4)
- 260 Thesis (4)

Fine Arts

A student may choose one of two concentrations in the Fine Arts major, General Interdisciplinary or Film Studies.

GENERAL INTERDISCIPLINARY

The program in general interdisciplinary studies is designed for students who wish to combine the various disciplines in fine arts. Although participation in studio classes is required, the program emphasizes the study of the history, theory, and criticism of the arts in three of the School's instructional areas. The nature of the program provides each student the opportunity to plan a uniquely individual course of study with the approval of an advisor. Upon completion of this program, students will be awarded the B.A. in Fine Arts with General Interdisciplinary as the area of concentration.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: None.

Program Requirements

Three one-year surveys in three different areas of the arts selected from Art History 20A-B-C-D-E-F, Art History 40A-B-C, Dance 110A-B-C, Dance 112A-B-C, Drama 40A-B-C, Music 40A-B-C or Music 20 for three quarters, Fine Arts 20 for three quarters; nine performance/studio courses (i.e., acting, ballet, drawing, chorus, orchestra); six upper-division courses in the history, theory, and criticism of the arts in at least two areas of the arts; a senior thesis; two years in a single European language at University level

(through 2C) or equivalent competence; related courses in disciplines other than fine arts are encouraged.

FILM STUDIES

The program in film studies centers on an interdisciplinary study of the history and criticism of film. The program combines a humanistic and practical approach to the study of cinema. The breadth of the degree requirements accommodates individual interests in the planning of a program of study. The film studies program, while providing an in-depth knowledge of one of the most important media of our time, also offers the opportunity for its students to participate in a highly creative and active educational experience. Upon completion of this program, students will be awarded the B.A. in Fine Arts with Film Studies as the area of concentration.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: None.

Program Requirements

Twenty courses or 80 units as follows: Drama 20, The Nature of Drama, or one quarter of Drama 40A-B-C; Fine Arts 22A-B, The Nature of Film; Drama 30A-B, Acting; History 29C, The Formation of Modern Society; Drama 114, Film Writing; Drama 115A-B-C, Filmmaking; Drama 186, Projects in Filmmaking; Fine Arts 192, Proseminar in Film Criticism (two quarters).

Twenty-eight units selected from the following courses on the history and theory of film (each course may be repeated for credit when content varies): French 160; Italian 160; German 150A-B-C; Russian 130 (same as Drama 117); Drama 109.

The student must also demonstrate language proficiency in a single European language equivalent to two years at University level (through 2C).

COURSES IN FINE ARTS

20A-B-C The Arts and Man (4-4-4)

Major accomplishments of man in art, dance, drama, and music.

22A-B Nature of Film (4-4)

104 Literature and Fine Arts (4)

May be repeated for credit.

192 Proseminar in Film Criticism (4)

Same as Drama 192.

School of Humanities

William J. Lillyman Dean

The School of Humanities sets for itself the goal of helping to develop both the analytical and creative powers of its students with particular respect not merely to some specific and limited vocational goal, but also to the larger questions of human conduct, the modes of human communication and symbolization, speculative thought, and the verbal arts. The School includes those basic disciplines of language, literature, history, and philosophy that deal fundamentally with the relation of man to himself and to all that is other than himself. As such, the School takes as its concern a large portion of the liberal education not only of students who intend to major within its confines, but also of students who come to it from other parts of the campus. Because of the nature of the disciplines collected in the School, it is deeply concerned with language and its many facets. Further, though the School has established a number of specific major courses of study, it is intent on integrating the basic disciplines in a variety of ways at the undergraduate level and to some extent at the graduate level.

Degrees

Classical Civilization	B.A.
Classics	B.A., Ph.D.
Comparative Literature	B.A., M.A., Ph.D.
English	B.A., M.A., M.F.A., Ph.D.
French	B.A., M.A., Ph.D.
German	B.A., M.A., Ph.D.
History	B.A., M.A., Ph.D.
Humanities	B.A.
Linguistics	B.A.
Philosophy	B.A., M.A., Ph.D.
Russian	B.A.
Spanish	B.A., M.A.T., M.A., Ph.D.

Honors

Students are nominated for honors at graduation on the basis of scholarship, research, and special achievements. To be nominated the student must achieve a grade point average of at least 3.20, receive strong recommendation from the department, have few or no "Incomplete" grades, and have taken relatively few courses on a P/NP basis. A minimum of six quarters residence at UCI is a necessary condition for honors at graduation.

UNDERGRADUATE PROGRAMS

The School offers undergraduate majors in classical civilization, classics, comparative literature, English, French, German, history, humanities, linguistics, philosophy, Russian, and Spanish. It offers elementary courses in Hebrew and elementary and upper-division courses in Italian and Portuguese.

A corps of lower-division advisors is designed to meet the special needs of freshmen and sophomores. The advisors are particularly interested in undergraduate education and especially knowledgeable about University regulations, requirements in and outside the School, course content, options to major, and other matters that may present difficulties. Students in the School do not elect majors until the last quarter of the sophomore year, at which time each student is assigned an advisor in the major chosen. Until that time the lower-division advisor is prepared to help the student keep options to major open, plan a coherent program of humanistic study, and reach an eventual decision about the major.

NOTE: In many undergraduate courses in the School of Humanities, additional meetings between individual students and the instructor may be required.

Generally each major stipulates a year's course that is both an introduction to the discipline and a prerequisite to the major itself. Students who plan wisely with their advisors will construct programs that include a good number of such courses.

Undergraduate students in the School of Humanities participate in the affairs of the School in a number of ways: by serving on committees of various departments, by sitting with the faculty in its meetings, and by serving on the student undergraduate advisory council, which directly advises the Dean.

Graduates of the School of Humanities often go on to graduate and professional schools. An undergraduate major in the humanities is excellent preparation for future careers in law, teaching at all levels, business, journalism, administration, government service at all levels, and even medicine.

Language Laboratory

The Language Laboratory serves as the audio-lingual resource center for the following languages taught in the School of Humanities: Spanish, French, German, Russian, Portuguese, Italian, and Hebrew. Students, faculty, and staff may listen to cassettes of audio material in the Laboratory, or they may check out cassettes and cassette players to practice at home. Members of the community are welcome to use the Language Laboratory facilities on campus.

In addition to the languages offered in the School of Humanities, the Language Laboratory has a tape library that includes reels in Persian, Romanian, Chinese, Japanese, Dutch, Swedish, Norwegian, English, and Swahili. Arrangements can be made to provide these languages on cassette.

Through the business office, the Language Laboratory operates a translation referral service for students, faculty, staff, members of the community, and local business. The Language Laboratory is located in 207 and 213 Humanities Hall and is open from 8:00 a.m. until 4:00 p.m., Monday through Friday. The phone number is (714) 833-6344.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements

Humanities 1A-B-C, taken in the freshman year (transfer students may substitute appropriate course work in composition, history, humanities, and/or philosophy for the Core course by permission: apply in the Dean's Office); two years of work in a single acceptable foreign language, either

modern or classical (through 2C), or equivalent competence; quarterly consultation with an assigned lower-division advisor and the advisor's written approval for the program of study decided upon. Consultation should be made by the second week of each quarter.

GRADUATE PROGRAMS

The School offers a wide program of graduate degrees. Although the Master's degree is offered in most departments, the programs emphasize the Ph.D. and give preference in admission to those students who intend to take that degree. An exception is the two-year Master of Fine Arts in English (Creative Writing).

In addition to the seminars offered by the various departments, the School sponsors a number of interdisciplinary seminars annually. These courses are taught jointly by faculty members from various departments. Further, several departments offer a few students the opportunity to do part of their work for the Ph.D. in a related discipline.

A limited number of students are accepted annually to study for teaching credentials. This program is a cooperative effort by the School and the Office of Teacher Education (see p. 241).

Graduate students in the School of Humanities participate in the affairs of the School in a number of ways: by serving on committees of the various departments, by sitting with the faculty in its meetings, and by serving on the student graduate advisory committee, which directly advises the Dean.

Department of Classics

UNDERGRADUATE PROGRAM

The Department of Classics aims to provide the undergraduate student with an exposure to the origins and heritage of western civilization. The Department is committed to a twofold purpose: (1) to transmit the culture, ideals, and attitudes of classical civilization through the Greek and Roman languages and literatures; and (2) through English translation courses in classical literature, civilization, mythology, and religion to help students appreciate the vast and pervasive influence of Greece and Rome on our own civilization. The Department offers both a major in Classics with an emphasis on Greek, Latin, or Linguistics and a ma-

major in Classical Civilization in which most of the required courses are in English translation. Students are encouraged to consult with the Classics faculty regarding the appropriate choice of major and design of program.

For the Classics major, the basis of studying the Classics must be competency in both of the classical languages. The Classics program is designed to provide the student with this competency as rapidly as possible, so that by the end of first year Latin or Greek, the student has already been introduced to some of the major classical authors in the original. From then on, the student is concerned with analyzing, interpreting, and appreciating the literatures of ancient Greece and Rome and will devote study to the theories and techniques of literary and textual criticism. In addition, students obtain a rich background in such ancillary disciplines as ancient history, archaeology, classical art, drama, philosophy, and religion.

The major in Classical Civilization is designed for those students who have no plans to pursue graduate studies in the classical languages, yet wish to obtain an undergraduate degree based on a sound exposure to the classical world. The nucleus of this major consists of one year of study (or its equivalent) in either classical language and a minimum of eight courses in English translation (five of which are given by the Department) concerning such topics as classical literature, civilization, history, archaeology, art, and drama.

The students planning to major in Classics or Classical Civilization should obtain a copy of the pamphlet, "The Classics," available in the departmental office.

Students entering UCI with previous Greek or Latin training will be given advanced standing as follows: In general, one year of high school work is equated with one quarter of UCI work. Thus, students with one, two, three, and four years of high school Latin will enroll in Latin 1B, 1C, 25, and 100 respectively. Exceptions to this ruling can be made but must have the approval of the Department Chair. Students with high school training in the classical languages are encouraged to consult with the Classics staff before enrolling in Classics courses.

Courses in Hebrew and Judaic Studies were initiated by the Department of Classics in September, 1976, through a joint agreement between the School of Humanities and the University of Judaism in Los Angeles. Under the auspices of this agreement, students may take two years of the Hebrew language. The courses cover both contemporary and biblical Hebrew. In addition, it is intended that a course will be

offered each quarter in either Jewish history, philosophy, or literature. All courses are taught by faculty from the University of Judaism. Through this program the Department of Classics is able to broaden its offerings to include both the Greek and Hebrew contributions to Western civilization.

The Department adheres to the policy of giving its students an opportunity to participate fully in the departmental decision-making process. Two student representatives, elected from and by the undergraduate majors, participate in all departmental meetings. They are responsible for maintaining close liaison with their constituency, for representing the students' interest in curriculum and personnel matters, and for the evaluation of both the academic program and the academic staff.

Please direct inquiries regarding language placement, prerequisites, planning a program of study, or other matters related to the Department's offerings to the Office of the Chair, 142 Humanities Hall, (714) 833-6735/5896.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: See page 116.

Departmental Requirements

Two separate majors: Classics (with an emphasis in Greek, Latin, or Linguistics) and Classical Civilization.

Classics (Greek emphasis): five or more courses on the Greek 100 level; Greek 110; Latin 1A-B-C; Latin 25; two courses on the Latin 100 level.

Classics (Latin emphasis): five or more courses on the Latin 100 level; Latin 110; Greek 1A-B-C; Greek 25; two courses on the Greek 100 level.

Classics (Linguistics emphasis): two possible plans of study. *Greek concentration* — Greek 25; five courses on the Greek 100 level; Greek 110; Latin 25; two courses on the Latin 100 level; Linguistics 50, 101, 102, 103 (Greek 120 recommended), or *Latin concentration* — Latin 25; five courses on the Latin 100 level; Latin 110; Greek 25; two courses on the Greek 100 level; Linguistics 50, 101, 102, 103 (Latin 120 recommended).

Note: With the permission of the Department, an additional 100 series course in the same language may be substituted for Greek or Latin 25.

Classical Civilization: Latin (or Greek) 1A-B-C, or equivalent; any three courses in the Classics 150 series; at least one each from the Classics 160 and 170 series; three additional courses in classical history, classical philosophy, classical art, or classical civilization approved by the Classics Department.

Planning a Program of Study

The Department believes in close consultation with students on academic advising, program planning, and discussion of goals and direction. Students planning to major in Classics or Classical Civilization are strongly urged to consult with the departmental faculty at the earliest possible moment, in order to familiarize themselves with the nature of the various programs. All majors are assigned to a faculty member for academic advising.

Career Opportunities

The Classics major may lead to a career in high school teaching, or, after appropriate graduate study, in college and university teaching. The major is prepared for admission to graduate study in classics, comparative literature, linguistics, ancient history, or, with additional course work, archaeology. A Classics or Classical Civilization major is also excellent preparation for entering a theological seminary. However, it is not the essential purpose of a major program in Classics, and especially Classical Civilization, to provide specific vocational skills. The study of Greek, Latin, and classical civilization is primarily a valuable component of a liberal education. A knowledge of Greek and Roman literature, history, religion, philosophy, and science provides a proper foundation for the investigation and appreciation of all aspects of modern civilization.

Nevertheless, the student who chooses to major in Classics or Classical Civilization has the choice of many professional opportunities. Graduate and professional schools in law, medicine, or business welcome students with training in the Classics. In many sectors of the business world, corporations prefer to train prospective managers and executives according to their own special methods and needs. These businesses are well acquainted with the value of a person who has chosen to study classics as an undergraduate. In a world of rapid industrial growth and in which highly specialized skills quickly become obsolete because of changes in technology, the student with a strong background in a respected liberal arts major such as Classics offers the diversity, flexibility, precision, and ability to learn which em-

ployers in business, government, and industry find attractive.

More specific career information is contained in the publication "Careers for Classicists" available from the Department.

GRADUATE PROGRAM

The Classics Ph.D. program is based upon the belief that close and constant individual attention to a student offers greater and more extensive educational opportunities than classroom instruction.

Under the program, a number of graduate students equal to the number of faculty members of professorial rank are admitted, each of whom is assigned to a single faculty member. This faculty member acts as the student's "preceptor" for the four years of the graduate program. The preceptor is responsible for the student's development and progress in three areas: comprehensive knowledge of the discipline, research competence, and teaching ability. Through frequent conference, the preceptor maintains constant control over the student's progress, provides assistance in the solving of problems, and responds to the student's needs as they arise. In addition, the preceptor involves the student with other faculty members in the Department for varying periods of time, dependent upon the nature of particular research problems and the areas of specialization of the faculty.

In general, the student should hold the equivalent of a B.A. degree in Classics. Although the program is designed primarily for students entering the Department with only the B.A. degree, a student holding a Master of Arts in Classics from another university can be assimilated into the program.

Normally, students admitted to the program are expected to work directly toward the degree Doctor of Philosophy in Classics, although the Master of Arts in Classics may be conferred after two years of graduate work. Generally, the student is expected to complete the Ph.D. program in four years; completion of the doctoral dissertation will be a prerequisite for leaving residence.

There are no formal course requirements for the Ph.D. in Classics. However, the Department offers a single seminar, Classics 220, designed to accommodate varying themes and projects which involve all graduate students enrolled in the program, as well as faculty outside of the Department,

guest lecturers, and visiting professors temporarily affiliated with the Department.

All doctoral students in the Department are expected to have at least six quarters of experience as a teaching assistant or six quarters in supervised research activities or an equivalent combination of teaching and research.

Upon entering the program, each student is provided with a reading list of both primary and secondary materials. While this reading list requires of each student thorough familiarity with classical literature, history, art, philosophy, and science, it is designed on an individual basis to provide for particular interests and predispositions in approaching the field of Classics. Under constant guidance from the preceptor, the student is expected to assimilate the prescribed materials on this reading list within a period of three years.

At the end of each year in residence, the student is required to pass a written examination designed to evaluate both progress with the reading list and development in particular areas of interest and specialization. By the beginning of the second year, the student is expected to pass reading examinations in two modern foreign languages (ordinarily, French and German). At the end of the third year in residence, the student is expected to pass oral qualifying examinations which cover comprehensively the entire field of Classics and take into account the student's individual interests.

Beyond the annual examinations, the students enrolled in the program are evaluated monthly, based on progress dossiers containing copies of the student's written work, reports by the preceptor as well as the seminar instructor, and statements by temporary faculty supervisors. The entire Classics faculty, acting as an evaluation committee, makes appropriate comment and recommendation. For purposes of maintaining official University records, grades are recorded for the student's performance in the seminars in which the student is enrolled.

A doctoral dissertation is required of all Ph.D. candidates. Normally, the student writes the dissertation under close supervision of the preceptor, or another faculty member designated to serve as dissertation director. The dissertation director, along with two or more faculty members (one of whom is the preceptor), shall then constitute the dissertation committee responsible for accepting or rejecting the dissertation. Upon completion of the dissertation, the student is required to submit to an oral dissertation defense.

THESAURUS LINGVAE GRAECAE PROJECT

Financed through private and federal funds, a major research project aimed at creating a *Thesaurus Linguae Graecae* has been in operation at the University of California, Irvine since the summer of 1972. This project has as its goal the creation of a computer-based data bank of Greek literature from its Homeric beginnings to approximately 600 A.D., as well as the semasiological evaluation and interpretation of the materials in question.

Though a separate administrative entity, the *TLG* is closely related to the Department of Classics in many respects. Faculty members of the Department are involved to varying degrees in *TLG* research; Classics graduate students are encouraged to apply for *TLG* Assistantships; UCI's library and research resources in Classics are immeasurably enhanced by the text and reference holdings acquired by the *TLG* for its own purposes; *TLG*-related conferences of both national and international scope provide the Department with an opportunity for constant communication with classicists at other universities and research centers; and periodic visits by individual scholars who hold research appointments offer UCI's Classics faculty and students continuous contact with a wide range of specializations within their discipline. It is to be expected that the establishment and availability of a data bank of ancient Greek literary and documentary materials will make UCI a major center of research activity in the field of Classics.

CLASSICS FACULTY

- Luci Berkowitz, Ph.D. The Ohio State University, *Associate Professor of Classics*
 Theodore F. Brunner, Ph.D. Stanford University, *Professor of Classics and Director, Thesaurus Linguae Graecae Project*
 Jack Cargill, Ph.D. University of California, Berkeley, *Lecturer in Classics*
 Peter Colaclides, Ph.D. University of Athens, *Professor of Classics*
 Richard I. Frank, Ph.D. University of California, Berkeley, *Associate Professor of Classics and History and Chairman of the Department of History*
 Marianne McDonald, Ph.D. University of California, Irvine, *Lecturer in Classics*
 Catharine P. Roth, Ph.D. Harvard University, *Lecturer in Classics*

UNDERGRADUATE COURSES

Greek 1A-B-C Fundamentals of Greek (5-5-5) F, W, S

The elements of classical Greek grammar and syntax, with selected readings. 1C is devoted to selected readings from Greek authors.

Greek 20A-B-C Intensive Greek (5-5-5) Summer

Offered in summer session only, this course series covers, in eight weeks, the equivalent of Greek 1A-B-C.

Greek 25 Intensive Greek Review (5) F

An intensive review of Greek grammar and vocabulary and an introduction to selected major authors for students who have passed 1C, its equivalent, or have had two years (with consent) or more of the language at the high school level. (Especially qualified students may bypass this course with the consent of the Department and go directly to the 100 level.)

Greek 99 Special Studies in Greek (4-4-4) F, W, S

Consultation with instructor necessary prior to registration.

Greek 100 Seminar in Greek Literature (4-4-4) F, W, S

Subject matter will vary from year to year. May be repeated for credit provided the topic varies. Prerequisite: Greek 25, equivalent, or consent of the Department.

Greek 110 Greek Prose Composition (4)

Prerequisite: Greek 25, equivalent, or consent of the Department. Not offered 1977-78.

Greek 120 Reading of Selected Portions of the New Testament (4)

The portions of the New Testament read may change each time the course is offered so that it can be taken for credit more than once. Prerequisite: Greek 1C or equivalent. Not offered 1977-78.

Greek 198 Directed Group Study (4-4-4) F, W, S

An investigation of special topics in Greek culture and civilization through directed reading and research. Consultation with instructor necessary prior to registration.

Greek 199 Independent Studies in Greek (4-4-4) F, W, S

Consultation with instructor necessary prior to registration.

Latin 1A-B-C Fundamentals of Latin (5-5-5) F, W, S

The elements of Latin grammar and syntax, with selected readings. 1C is devoted to selected readings from Roman authors.

Latin 20A-B-C Intensive Latin (5-5-5) Summer

Offered in summer session only, this course covers, in eight weeks, the equivalent of Latin 1A-B-C.

Latin 25 Intensive Latin Review (5) F

An intensive review of Latin grammar and vocabulary and an introduction to selected major authors for students who have passed 1C, its equivalent, or have had two years (with consent) or more of the language at the high school level. (Especially qualified students may bypass this course with the consent of the Department and go directly to the 100 level.)

Latin 99 Special Studies in Latin (4-4-4) F, W, S

Consultation with instructor necessary prior to registration.

Latin 100 Seminar in Latin Literature (4-4-4) F, W, S

Subject matter will vary from year to year. May be repeated for credit provided the topic varies. Prerequisite: Latin 25, equivalent, or consent of the Department.

Latin 110 Latin Prose Composition (4)

Prerequisite: Latin 25, equivalent, or consent of the Department. Not offered 1977-78.

Latin 120 Introduction to Vulgar and Medieval Latin (4)

A study of the morphological, syntactical, and lexical developments in post-classical Latin as illustrated by the reading of a variety of texts. Prerequisite: Latin 1C or consent of the instructor. Not offered 1977-78.

Latin 198 Directed Group Study (4-4-4) F, W, S

An investigation of special topics in Roman culture and civilization through directed reading and research. Consultation with instructor necessary prior to registration.

Latin 199 Independent Studies in Latin (4-4-4) F, W, S

Consultation with instructor necessary prior to registration.

Classics 1A-B-C Hebrew Fundamentals (4-4-4) F, W, S

Classics 2A-B-C Hebrew Reading and Composition (4-4-4) F, W, S

Prerequisite: Classics 1C or equivalent.

Classics 5 Building English Vocabulary through Greek and Latin Roots (4) F

Studies in the formation and use of English words from Greek and Latin derivatives. Particularly useful for first year students who wish to augment their vocabulary systematically.

Classics 10 Scientific and Specialized Terminology (4) W

A study of English terms derived from Greek and Latin and important to contemporary medicine, science, and other professions, with emphasis on the development of word-building skills. No prior knowledge of Greek or Latin required. The work is designed to aid undergraduates, particularly those in the sciences, in the development of their technical vocabulary.

Classics 50A-B-C Ancient Civilization (4-4-4) F, W, S

An interdisciplinary course concerned with the civilization of the ancient Mediterranean world and culture in general. It has three primary aims: (a) to introduce the basic disciplines of classical studies; (b) to analyze important political and social structures which developed in antiquity, along with the values and art associated with them; (c) to help students learn to express themselves with clarity, coherence, and logic.

Classics 99 Special Studies in Classics (4-4-4) F, W, S

Consultation with instructor necessary prior to registration.

Classics 141 Classical Historians and Historiography (4)

The development of historiography from its ethnographic and epic origins to its form as a major literary genre. All readings are in English. Same as History 100C. Not offered 1977-78.

Classics 150A-B-C Judaic Studies (4-4-4) F, W, S

Studies in Jewish culture, history, and philosophy. No pre-

requisite. Topics will vary from quarter to quarter. May be repeated for credit.

Classics 151 Introduction to Classical Literature in English Translation

Based upon readings from the major Greek and Roman authors, this course presents the writers in the context of the civilizations which produced them. All readings are in English.

151A Greek Literature in English Translation (4) F

151B Roman Literature in English Translation (4)
Not offered 1977-78.

Classics 152 Introduction to Classical Archaeology (4) W

This course will describe the range and variety of materials which can be used as evidence for a reconstruction or a recovery of the Greek and Roman civilizations and the methods by which information is inferred from the artifacts. An effort will be made to emphasize particular facets of daily life, rather than an overview of cultural development.

Classics 153 Classical Mythology and Religion (4) S

Study of the Greek and Roman divinities and religions in light of their impact on the pre-Christian and Christian world. All readings are in English.

Classics 154 Classics and History: The Ancient World (4)

Study of selected topics in the society and culture of the Graeco-Roman World. Subject will vary from year to year. May be repeated for credit providing the topic varies. All readings in English translation. Not offered 1977-78.

Classics 155 Classics and Philosophy: The Greek and Roman Philosophers (4)

Study of selected topics in Greek and Roman philosophy. Subject will vary from year to year. May be repeated for credit providing the topic varies. All readings in English translation. Not offered 1977-78.

Classics 160 Topics in Classical Literature in English Translation (4) W

The subject matter of this course is variable. May be repeated for credit providing the topic varies. For 1978: Classical Lyric.

Classics 165 New Testament Literature (4)

Study of the New Testament based on analysis of the texts and their literary, historical, and religious contexts. Not offered 1977-78.

Classics 169 Ancient Literary Criticism (4)

A study in English translation of the major literary critics in classical antiquity including Plato, Aristotle, Dionysius of Halicarnassus, Cicero, Horace, "Longinus," Quintilian, Tacitus, and St. Augustine. Designed particularly for students majoring in Comparative Literature, English, Classics, and the various languages. Not offered 1977-78.

Classics 170 Topics in Classical Civilization in English Translation (4) S

The subject matter in this course is variable. May be repeated for credit providing the topic varies. For 1978: Greek History.

Classics 174 Topics in Classical Religion and Mythology (4)

Subject will vary from year to year. May be repeated for credit providing the topic varies. All readings in English translation. No prerequisite, but Classics 153 suggested. Not offered 1977-78.

Classics 175 Advanced Archaeology (4)

The study of a selected topic (to be announced) in classical archaeology. Subject matter will vary from year to year. May be repeated for credit. Prerequisite: Classics 152, or equivalent study in classical archaeology or art history, or consent of the instructor. Not offered 1977-78.

Classics 198 Directed Group Study (4-4-4) F, W, S

Investigation of special topics in classical studies through directed reading and research. Consultation with instructor necessary prior to registration.

Classics 199 Independent Studies in Classics (4-4-4) F, W, S

Consultation with instructor necessary prior to registration.

GRADUATE COURSES

Classics 220 Classics Graduate Seminar (12-12-12) F, W, S

Subject matter is variable.

Classics 299 Dissertation Research (4-4-4) F, W, S

Classics 399 University Teaching (4-4-4) F, W, S

A course required of and limited to Teaching Assistants.

Department of English and Comparative Literature

The Department of English and Comparative Literature is concerned with the nature and value of literature, possible approaches to literary works, and the relation of literary criticism to the intellectual issues of the day. Fundamentally it is concerned with the humanistic problem of value. Thus its main literary concern is critical and theoretical. Though not alone in the task, the Department recognizes a continuing obligation to help all students write the English language with clarity and grace.

Students are given the opportunity to participate in departmental affairs through two elected student committees, one of undergraduates, one of graduates, which are concerned primarily with matters of personnel and curriculum. The committees meet periodically with faculty committees of

the Department, and the recommendations of student committees become matters of record which accompany any recommendations emanating from the Department. Each quarter all students taking classes within the Department have the opportunity to evaluate the particular course and teacher.

UNDERGRADUATE PROGRAM

The Department offers to the undergraduate essentially three areas of study:

The Program in Literary Criticism, which emphasizes a variety of critical approaches in the reading and criticism principally of English and American literature.

The Program in Writing, which offers an emphasis in the writing of poetry, fiction, or drama. The aim of the program is to encourage the creative powers of students while introducing them to the discipline of reading and practical criticism, often in workshop situations. Students from schools other than Humanities may satisfy a component of the breadth requirement by enrolling in one of the beginners' workshops and in two of the related courses of the E and CL 6, 7, 8 group.

The Program in Comparative Literature, which, though administratively a part of the Department, is basically interdisciplinary in its orientation, drawing on faculty and other resources from the fields of the various modern and classical literatures and drama. The consciousness of the modern educated person is the product of centuries of cultural heritage, including not only works of literature in one's own language but world literature from Homer to Gide and Thomas Mann. At UCI, Comparative Literature is regarded as the study of literature from the international point of view rather than in a national framework. A student who completes a degree in Comparative Literature will be expected to have a grasp of the history of literature in its broad outlines and to be able to deal competently with literary texts, whatever their period or national origins.

Since the Department believes that a student of literature should recognize the importance of understanding theoretical problems in literature, of developing a broad acquaintance with literary texts, and of experiencing the problems of literary creation at first hand, the Department invites students to take work in all three of its programs, with an emphasis in one of the first two (toward a Bachelor's degree in English) or a major in the third (toward a Bachelor's degree in Comparative Literature).

Many of the courses will vary in specific content from year to year, depending on the plans of individual teachers, since the Department recognizes that no course can treat all the major authors and works relevant to a given period or topic.

Students intending to major in English or Comparative Literature should obtain a copy of *Undergraduate Study in English and Comparative Literature* from the departmental office.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: See page 116.

Departmental Requirements

English: Two courses from the E 28A-B-C or CL 50A-B-C groups (including either E 28A or CL 50A) and a third course either from these two groups or from E 6, 7, 8 or CL 7 or 8; CR 100A-B; CL 100; E 102A-B-C; four courses above 102, at least three of which must be 103s or 104s; competence in a foreign language, either classical or modern, equivalent to six quarters of work at Irvine (in classical languages, 1A-B-C and Greek or Latin 100 three times), plus (in modern languages) one course in a foreign literature in which texts are read in the original language; passing performance in the Senior Comprehensive Examination in English (see below). Students selecting a writing emphasis have some flexibility in substituting writing workshops for period and genre courses; their total courses normally number more than the usual major.

Comparative Literature: Sufficient competence in a foreign language, either modern or classical, to be able to deal with any standard literary or critical text in that language with facility. If the student intends to continue with graduate work, the study of a second foreign language is highly recommended before graduation.

Three quarters of lower-division work: Comparative Literature majors are normally required to take CL 50A-B-C. Transfer students may be required to take one or more courses in the sequence depending on the courses they have taken previously.

Normally ten upper-division courses in addition: usually these will include CR 100A-B, CL 100, CL 102A-B (required) and either E 103 or CL 103 or CL 104; suitable upper-division course work in the literature of a foreign language; appropriate study in English and American litera-

ture; and further study in literature or allied fields as recommended by the advisor.

The Comparative Literature Program maintains a comprehensive reading list in world literature, on which CL 50A-B-C and CL 102A-B are based. Students who have not taken and passed one or more of those courses may, *by prior arrangement with the Director of the Program*, take an examination on relevant parts of the reading list in qualifying for a Bachelor's degree in Comparative Literature.

Planning a Program of Study

Students should plan, with their faculty advisors, coherent programs of study, including undergraduate seminars, workshops in writing (for students choosing a writing emphasis), and courses in allied areas outside the Department. It is possible to combine a cluster of courses in literature with other majors in the sciences and social sciences, and to use an English or Comparative Literature major as preprofessional training in government, law, medicine, etc. Students who wish advice in planning such programs should consult both the Department and people in their prospective professional areas.

A student who intends to continue with graduate work is urged to study a second foreign language before graduation.

The Senior Comprehensive Examination in English (E 102A-B-C)

The purpose of this examination and the three reading courses attached to it is to give students a chance to show how much and how well they have learned in reading on their own. Divided into three parts by historical periods, the examination will ask that a student reveal the following: an ability to read any given literary text intelligently; a knowledge of the general outlines of English and American literary history, including the more significant facts and dates; an understanding of the terms appropriate to literary discussion; and a knowledge of the works on the reading list.

Students must take the three examination courses in their senior year. A student who fails part one may enroll in a second course, taking a make-up examination at first opportunity, and so on with parts two and three. No student may take any of the three parts of the examination more than three times, and no student who fails to pass all three parts may receive a degree in English. Normally, students will take the three parts in the A-B-C order; students graduating in an off quarter, however, may vary the sequence.

Copies of past examinations may be obtained in the office of the Department of English and Comparative Literature.

GRADUATE PROGRAM

The Department's three principal areas of work on the undergraduate level — English and American Literature, Comparative Literature, and the English major with writing emphasis — are reflected in the graduate programs: the M.A. and Ph.D. in English, the M.A. and Ph.D. in Comparative Literature, and the M.F.A. in English (Creative Writing). A student's courses for the M.A. and Ph.D. in English may include or emphasize work in American literature as well; and the faculty is particularly equipped to guide students with special interests in criticism and theory, an area which candidates for the Ph.D. in English or in Comparative Literature may, subject to approval, stress in their qualifying examinations and dissertations. Ordinarily students are not admitted to the English or Comparative Literature programs unless they plan to continue, and are qualified to continue, to the degree of Ph.D. Students are admitted to the M.F.A. program chiefly on the basis of submitted creative work. A committee of the Department, with the consent of the Dean of the Graduate Division, admits students to these programs. Each program has a director appointed by the Department Chair. A deliberate effort is made to maintain close administrative and intellectual ties between the programs.

Specific requirements for graduate degrees will be reached by consultation between members of the faculty and the candidate. The first-year graduate student or the candidate for the Master of Fine Arts in English (Creative Writing) plans a program with an assigned advisor; candidates for the Ph.D. plan with an advisor and a two-person committee. Candidates for literary degrees are encouraged to study philosophy, history, foreign languages and literatures, and the fine arts.

Applicants for graduate degrees in English and Comparative Literature must submit scores for the Graduate Record Examination (GRE) including the Advanced Literature in English Test; applicants must also submit sample papers and a statement about competence in foreign languages.

Part-time graduate work is not permitted. Only in exceptional circumstances will students be permitted to undertake programs of less than six full courses during the academic year. The normal expectation, however, is enrollment in three courses each quarter, except for Teaching

Assistants, who take two courses in addition to their teaching assignments during a given quarter.

The Department recognizes that many of its graduate students intend to become teachers, and it believes that graduate departments should be training college teachers as well as scholars — indeed, that teaching and most literary scholarship complement one another. Thus the Department has initiated a program by which all its Ph.D. candidates, in English as well as in Comparative Literature, may gain supervised training as part of the formal seminar work required for the degree. M.F.A. candidates also have the opportunity of participating in this program.

The School of Criticism and Theory — operated by a nationally-chosen Board of Senior Fellows and supported with assistance from the National Endowment for the Humanities — is a summer program staffed by distinguished theorists and loosely affiliated with the Department. Two tuition waivers for the School's summer program are allotted to graduate students within the Department, and any graduate student in the Department may seek admission to the School or access to its forums, lectures, and other functions.

All those interested in graduate study in the Department should obtain the brochure on graduate programs from the departmental office.

English

Master of Arts in English

Each candidate for the M.A. will be assigned to a graduate advisor who will supervise the student's program. The M.A. plan of study includes (1) the completion of course work, as advised, for three quarters or the equivalent; (2) demonstrated proficiency in reading a designated foreign language, modern or classical; (3) the passing of a written examination upon a designated reading list. Exceptional students may be exempted from taking the examination by petitioning the Graduate Committee, which will review the student's performance and qualifications in arriving at its decision. The candidate must take all formal work in graduate-level courses and seminars.

Master of Fine Arts in English

The Master of Fine Arts (M.F.A.) is a degree in creative writing.

The M.F.A. degree is normally conferred upon the completion of a two-year residence. Each quarter the candidate

will be enrolled in either the poetry or fiction section of the Graduate Writers' Workshop, which will constitute two-thirds of a course load, the other course to be selected in consultation with the student's advisor. The fifth quarter of work toward the degree may be taken at the Instituto Allende, San Miguel de Allende, Mexico. It is expected that M.F.A. candidates will complete at least one supervised teaching seminar.

In addition to course work, the candidate is required to pass an examination on a reading list of literary works in the genre selected, and to present as a thesis an acceptable book-length manuscript of poetry or short stories, or a novel.

Doctor of Philosophy in English

The program for the Ph.D. in English normally requires about two years of full-time enrollment in regular courses beyond the B.A. (two of which may be in the graduate teaching program); proficiency in the reading of two acceptable foreign languages, modern or classical; the dissertation; and satisfactory performance on designated examinations.

The languages acceptable depend upon the nature of the student's program as determined by the student's advisors. Reading competence in one of these languages must be established in the first year of residence, and competence in the second well before the general examination.

Students admitted at the post-M.A. level must provide evidence of satisfactory competence in foreign languages. Competence in one of the two languages required for the Ph.D. is verified through a course in theory and practice of translation; the other language may be verified through examination.

Upon completion of course work the student normally takes general examinations on literary theory and criticism; on some particular literary form, genre, style, theme, or structure; a historical period; a group of authors; and a specific topic. The first four of these examinations are written, the fifth oral. The student has the opportunity to present personal choices for the examination, but the choices must enable an individual to demonstrate breadth of knowledge as well as literary understanding and therefore must be approved by the advisory committee.

Upon satisfactorily completing the general examination, the student is admitted to candidacy for the degree. As soon after completion of the general examination as is prac-

ticable, the student presents an essay leading to a dissertation for the approval of the advisory committee. Submission of an acceptable dissertation completes the Ph.D. All work for the Ph.D. degree must be in courses limited to graduate students.

Comparative Literature

There are at least four avenues by which the student may approach graduate work in Comparative Literature:

1. an undergraduate major in Comparative Literature equivalent to the one described above;
2. an English major, provided that a sufficient background in at least one foreign language is demonstrated, and a beginning on a second foreign language is desirable;
3. a normal major in drama, with same provisos as 1. above;
4. a normal major in a foreign language, provided that a sufficient general background in world literature is demonstrated.

Make-up work will be required before graduate studies can begin if one of these avenues has not been taken.

At the graduate level, the study of Comparative Literature becomes more specialized, with the student engaged in a particular area of research and dealing with such problems as the development of genres, interrelations between literatures, the theory and practice of translation, and other literary questions transcending national boundaries.

For the graduate student in Comparative Literature a professional competence in foreign languages is essential. French and German are usually required for all doctoral candidates, since these languages along with English are the accepted tools of international literary scholarship. A classical language may prove indispensable for work in many traditional fields of literary study, and the scholar's own specialty may require the mastery of other languages. The underlying assumption in the whole plan of language requirements is that, after the tool languages have been mastered, the professional scholar's own interests should determine the specific kinds and degrees of language skill to be acquired.

At the graduate level, the nucleus of the foreign language requirement is the course CL 220 (Problems in Translation) in which, after a suitable theoretical preparation, the student plans and carries out a high-quality translation of a literary text. This translation, along with an introduction or

other scholarly apparatus explaining and defending the technical decisions involved in the task, is then submitted as a paper for course credit.

Master of Arts in Comparative Literature

Students entering the Master of Arts program should complete their course work in three quarters. This course work should include CL 220 (Problems in Translation) with a project in either French or German and appropriate graduate-level work in English, foreign languages, drama, comparative literature, and other areas as counseled by the advisor. Soon after beginning graduate work the student, with the advice and approval of the assigned advisor, will decide on a field of specialty which will be emphasized in progressing toward the M.A. degree. (Normally this choice will be a kind of general or preliminary step toward the selection of an area of specialty for the Ph.D.)

Graduate study in Comparative Literature requires an exceptional facility in foreign languages, and the student should not attempt a Master's degree without a thorough knowledge of one foreign language and literature and a considerable knowledge of a second language. Normally the greatest part of the student's work will involve the study of literary texts in the original languages.

At the end of course work, normally about nine courses at the graduate level, the student will be examined in the following categories: the elected field of specialty; a general knowledge of world literature (including English and American) somewhat more extended than expected of the undergraduate student; and a knowledge of literary theory and techniques of literary study on a level appropriate for the graduate scholar. Exceptional students may be exempted from taking the examination by petitioning the Graduate Committee, which will review the student's performance and qualifications in arriving at its decision.

Doctor of Philosophy in Comparative Literature

The doctoral program is designed to prepare the student for a professional career as a scholar and critic of literature. Details of the doctoral program in Comparative Literature may be obtained from the Director. Normally the degree requires two years of course work (usually a minimum of three courses per quarter). Of these courses, the only required course is CL 220 (Problems in Translation), which is taken twice, with projects in acceptable languages. The rest of the student's work will be in seminars or other graduate-level courses in Comparative Literature, English, the various foreign language departments, or drama.

In general an exceptional command of foreign languages is required, normally involving a professional competence in two or more foreign languages, either modern or classical. The doctoral student is encouraged to design and carry out a personal plan of study (the area of specialty) in a particular field of interest. The requirements for the doctorate also include an area of competence in literary theory and practical criticism; and, subject to approval, a student may stress theory in partial preparation for the qualifying examination.

Upon completion of the course work, the student will be examined in the following areas of knowledge: (1) mastery of a limited topic in literary theory or history of criticism, along with general knowledge of major critical texts in the history of literature; (2) an area of specialty as described above; and (3) a general knowledge of the western European literary tradition, including English and American, commensurate with doctoral competence in the field. Following this examination, and upon recommendation of a candidacy committee appointed by the Graduate Council, the student is formally admitted to candidacy.

The study toward the degree of Doctor of Philosophy will culminate in the writing of a suitable dissertation, normally on a comparative subject, although subjects lying within a single literature or dealing with general literary and aesthetic problems not confined to any specific literatures may also be acceptable. Studies of the relation between literature and the other arts are also particularly encouraged.

ENGLISH AND COMPARATIVE LITERATURE FACULTY

- Howard S. Babb, Ph.D. Harvard University, *Professor of English and Chairman of the Department*
Joseph N. Bell, B.A. University of Missouri, *Lecturer in English*
James L. Calderwood, Ph.D. University of Washington, *Professor of English and Associate Dean for Graduate Study, School of Humanities*
Robert Folkenflik, Ph.D. Cornell University, *Associate Professor of English*
Alexander Gelley, Ph.D. Yale University, *Associate Professor of Comparative Literature*
Linda Georgianna, Ph.D. Columbia University, *Assistant Professor of English*
Oakley Hall, M.F.A. University of Iowa, *Professor of English*

- Carl Hartman, M.F.A. University of Iowa, *Senior Lecturer in English and Assistant Vice Chancellor – Academic Affairs*
Donald Heiney, Ph.D. University of Southern California, *Professor of Comparative Literature*
Renée Riese Hubert, Ph.D. Columbia University, *Professor of Comparative Literature and French*
Anton Kaes, Ph.D. Stanford University, *Assistant Professor of German and Comparative Literature*
Murray Krieger, Ph.D. Ohio State University, *University Professor of English and Director of the Program in Critical Theory*
Frank Lentricchia, Ph.D. Duke University, *Professor of English*
Jay Martin, Ph.D. Ohio State University, *Professor of English*
James McMichael, Ph.D. Stanford University, *Professor of English*
Robert L. Montgomery, Ph.D. Harvard University, *Professor of English*
Robert L. Peters, Ph.D. University of Wisconsin, *Professor of English*
Barbara L. Reed, Ph.D. Indiana University, *Lecturer in English and Assistant Vice Chancellor – Academic Affairs for Administration*
John C. Rowe, Ph.D. State University of New York at Buffalo, *Assistant Professor of English*
Maria Ruegg, Ph.D. Yale University, *Assistant Professor of Comparative Literature*
Edgar T. Schell, Ph.D. University of California, Berkeley, *Associate Professor of English and Vice Chairman of the Department*
Myron Simon, Ed.D. University of Michigan, *Professor of English and Education*
Harold Toliver, Ph.D. University of Washington, *Professor of English*
Albert O. Wlecke, Ph.D. Michigan State University, *Associate Professor of English*
Charles P. Wright, Jr., M.F.A. University of Iowa, *Professor of English and Director of the Writing Program*

UNDERGRADUATE COURSES

Satisfaction of the Subject A requirement is a prerequisite for all departmental courses except E 6, 7, 8 and CL 7, 8. However, students scoring from 550 to 600 on the CEEB English Composition Achievement Test may enroll directly in English 28A.

Writing Workshop (2)

Open as space allows to students held for Subject A who are enrolling simultaneously in the Humanities Core Course (Humanities 1A-B-C). For further information, consult the Subject A Office.

WR 1A-B Fundamentals of Composition (4-0) F, W, S

Discussion, three hours. Writing 1A deals with basic problems of grammar, sentence structure, and paragraph organization in the writing of expository prose; some exercises, frequent papers. Students achieving a grade of 2.0 (C) or higher in Writing 1A satisfy the Subject A requirement. A student seeking to satisfy the Subject A requirement whose work is lower than 2.0 (C) in Writing 1A will receive a grade of IP and should enroll in Writing 1B, which continues to treat the matters studied in Writing 1A; a student whose performance in Writing 1B achieves the level of 2.0 (C) or higher will satisfy the Subject A requirement.

E 6 Shakespeare (4) F

Lecture, three hours. Reading of several major plays, with concentration on thematic issues and problems in dramatic presentation.

E 7 Major American Authors (4) W

Lecture, three hours. Readings in Twain, Whitman, Eliot, Faulkner, and several other figures.

E 8 Major English and Irish Authors (4) S

Lecture, three hours. Readings usually in a major figure or text such as Joyce's *Ulysses*.

CL 7 Existentialism in Literature (4) W

Lecture, three hours. Introduction to literary aspects of problems raised by existential philosophers.

CL 8 Major European Authors (4) S

Comparative study of two or more European writers related by genre, style, etc., for instance, Balzac and Dickens, Kafka and Beckett.

E 28A-B-C The Nature of Literature (4-4-4) F, W, S

Discussion, three hours. Lyric and Epic Imagination (A); Comic and Tragic Vision (B); Realism and Romance (C). Reading of selected texts to explore the ways in which these modes formulate experience. Students will write several short papers in each course.

WR 30 The Art of Writing: Poetry (4) F, W, S

Beginners' workshop in the writing of poetry, evaluation of student manuscripts, and parallel readings.

WR 31 The Art of Writing: Prose Fiction (4) F, W, S

Beginners' workshop in fiction writing, evaluation of student manuscripts, and parallel readings.

WR 32 The Art of Writing: Drama (4)

Beginners' workshop in playwriting, evaluation of student manuscripts, and parallel readings. Same as Drama 32.

WR 38 The Art of Writing: Nonfiction and Journalism (4) F, W

Beginners' workshop in the writing of nonfiction and news articles, evaluation of student manuscripts, projects. Three hours.

WR 39 Expository Writing (4) F, W, S

Practice in writing clear and effective expository prose. Three hours.

CL 40A-B-C Development of Drama (4-4-4) F, W, S

Same as Drama 40A-B-C.

CL 50A-B-C The Literary Tradition (4-4-4) F, W, S

The reading of selected major works in the western literary tradition.

CR 100A Literary Theory and Criticism (4) F

Required of beginning majors in English and Comparative Literature. A series of lectures and discussions devoted to the theoretical dimensions of literary criticism as reflected in major theorists from Plato to the present. Prerequisite: a lower-division series in literature.

CR 100B Undergraduate Seminar in Literary Theory (4) F, W, S

Seminar, three hours. Open to upper-division majors in English and Comparative Literature only, and required of them soon after the completion of CR 100A. Sections limited to fifteen students. Each instructor announces a theoretical topic deriving from CR 100A and explores it through a number of theoretical and literary texts. May be repeated as the topics change. Prerequisite: CR 100A.

WR 100B Undergraduate Seminar in Literary Theory (4) W, S

Seminar, three hours. Substitute for CR 100B (above) for writing emphasis students. Prerequisite: CR 100A.

CL 100 Undergraduate Seminar in Literary Theory and Practice (4) F, W, S

Seminar, three hours. Open to upper-division majors in English and Comparative Literature only, and required of them. Sections limited to fifteen students. Each instructor announces a topic that joins theoretical speculation about literature with the practical criticism of individual literary texts. May be repeated as the topics change. Prerequisite: a lower-division series in literature.

E 102A-B-C Comprehensive Examination Reading Program in English Literature (4-4-4) F, W, S

Required of English majors; qualified nonmajors may enroll with consent. This series of three courses is designed to prepare students for three parts of the comprehensive examination. E 102A: Medieval and Renaissance; E 102B: later seventeenth-century through the Romantic period; E 102C: Victorian, American.

CL 102A-B Undergraduate Reading Program in Comparative Literature (4-4) W, S

Reading, lectures, and discussion. Required of Comparative Literature majors, but others may enroll with consent. CL 102A: Post-Romantic Continental Literature; CL 102B: Twentieth-Century Continental Literature.

E 103 Undergraduate Lectures in English Literature (4) F, W, S

Three hours. May be taken more than once provided the topic changes. A series of lectures on announced topics in literary criticism, history, genres, modes, major authors. Prerequisites: none for most topics; check descriptions of individual course topics.

CL 103 Undergraduate Lectures in Comparative Literature (4) F, S
Three hours. May be taken more than once provided the topic changes. A series of lectures on announced comparative topics in literary criticism, history, genres, modes, major authors. Prerequisites: none for most topics; check descriptions of individual course topics.

CL 104 The Interdisciplinary Course (4) F
Lecture course open to all students, three hours. May be taken more than once provided the topic changes. Treats interdisciplinary topics of various kinds (e.g., literature and politics, literature and religion, literature and science, literature and other arts). Prerequisites: none for most topics; check descriptions of individual course topics.

WR 109 Nonfiction and Journalism (4) S
By consent. Three hours. The course develops out of WR 38 for students with special competence for advanced work in journalism.

WR 110 Short Story Writing (4) W, S
By consent. Three-hour workshop in short fiction; discussion of student writing and of relevant literary texts. May be repeated once for credit towards graduation, but not repeated for credit within the major.

WR 111 Poetry Writing (4) W, S
By consent. Three-hour advanced poetry writing workshop; discussion of student writing and of relevant literary texts. May be repeated once for credit towards graduation, but not repeated for credit within the major.

WR 112 Playwriting (4)
By consent. Three-hour advanced playwriting workshop; discussion of student writing and of relevant literary texts. Same as Drama 112.

WR 113 Novel Writing (4) S
By consent. Three-hour advanced workshop in fiction writing; discussion of student writing and of relevant literary texts.

WR 115 Conference in Writing (4)
By consent. Primarily for writing emphasis seniors. May be repeated.

WR 139 Advanced Expository Writing (4)
Discussion, three hours. Study of rhetorical techniques; practice in writing clear and effective prose. Prerequisites: E 28A-B-C, or CL 50A-B-C, or Humanities 1A-B-C, or an equivalent year of work in composition. WR 39 is also advisable.

E 140 Children's Literature (4) F
Lecture course open to all students. Explores the nature of children's literature and the special critical problems raised by it. Primarily for nonmajors; may not be counted toward the upper-division requirement in English or Comparative Literature.

E 150 Topics in Literature for Nonmajors (4)
Lecture, three hours. Major texts in English, American, and Comparative Literature explored for basic humanistic issues and themes, on announced topics. Primarily for upper-division stu-

dents, but not requiring previous training in literature. May be repeated as topics change; may not be counted toward the major.

E 181 The Structure of English (4) S
Prerequisite: Linguistics 50 or an equivalent course.

E 184 History of English Language (4) W

E 187 Selected Topics in English Linguistics (4)

E 198 Special Topics (4-4-4) F, W, S
Directed group study of selected topics. By consent, by arrangement.

E 199 Reading and Conference (4-4-4) F, W, S
By consent, by arrangement. To be taken only when the materials to be studied and the topic to be pursued lie outside the normal run of departmental offerings, when the student will have no formal chance in the course of several years to pursue the subject of interest, and when the subject fits significantly into the student's major program. Before enrolling in this course, the student must have the consent of the advisor, the instructor, and the Department Chair. To obtain consent the student must submit a written description of the course to the Chair.

CL 198 Special Topics (4-4-4) F, W, S
Directed group study of selected topics. By consent, by arrangement.

CL 199 Reading and Conference (4-4-4) F, W, S
See the description of E 199 above.

GRADUATE COURSES

All graduate courses may be repeated when the topic varies. Descriptions of the topics to be treated in a given academic year are published by the Department in the fall. Enrollment in each graduate course requires the consent of the instructor. The courses are limited to registered graduate students, except for specially qualified fifth-year students seeking teaching credentials, who may enroll if they have first received permission from the Department's Graduate Committee and if space permits.

In addition to the following courses, graduate students in the Department of English and Comparative Literature may find these Humanities courses of special interest: Humanities 200 (The Nature and Theory of History), Humanities 210 (Approaches to Linguistic Study), and Humanities 230 (Philosophical Analysis).

E 200 Selected Topics in English Linguistics (4)

E 210 Studies in Literary History (4) F, W, S

CL 210 Comparative Studies (4) F, W, S

CR 220A-B-C Studies in Literary Theory and Its History (4-4-4)
F, W, S
CR 220A same as Humanities 220.

- CR 220 Studies in Criticism and Theory (4) F, W, S
 CL 220 Problems in Translation (4) F, W
 E 225 Studies in Literary Genres (4) F, W, S
 E 230 Studies in Major Writers (4) F, W, S
 E 235 Methods of Literary Scholarship (4)
 WR 250 Graduate Writers' Workshop (4 to 8) F, W, S
 WR 251 Writing in Conference (4 to 8) F, W, S
 E 290 Reading and Conference (4) F, W, S
 CL 290 Reading and Conference (4) F, W, S
 E 291 Guided Reading Course (4)
 CL 291 Guided Reading Course (4)
 E 299 Dissertation Research (4 to 12) F, W, S
 CL 299 Dissertation Research (4 to 12) F, W, S
 E 398 The Teaching of English (4) F
 Restricted to fifth-year students in the teacher certification program and to others with consent of Department's Graduate Chair.
 E 399 University Teaching (4-4-4) F, W, S
 A course required of and limited to Teaching Assistants.

Department of French and Italian

The French and Italian Department offers courses designed to provide linguistic competence and a broad knowledge of diverse aspects of French and Italian culture: literary, social, historical, esthetic. It seeks to enrich the students' appreciation of their own civilizations and to create a deeper sense of international understanding.

The program brings the students to participate in the creative process of language, to think in French or Italian as they learn to understand, speak, read, and write. Most classes are taught entirely in the foreign language, and a multiple approach stresses the interdependence of the four basic skills and makes them mutually reinforcing. The Language Laboratory is used to complement classroom activity.

Representatives chosen by the undergraduate French majors and by the graduate students serve on departmental committees. These representatives also participate in Department meetings and are responsible for student evaluation procedures.

UNDERGRADUATE PROGRAM IN FRENCH

While preparing the student for graduate work and for the teaching profession, the French major is essentially a liberal arts program offering a broad, humanistic course of study.

At the intermediate lower-division level, texts of contemporary literary and social interest provide the focus for advanced conversation, reading, and composition.

After the second year, courses in speaking (conversation and phonetics) and writing enable the students to attain a greater degree of proficiency, preparing them for further study in French literature and linguistics and in French civilization and culture.

In the introductory courses in literature, complete texts are studied by genre: poetry in the fall; theatre in the winter; the novel in the spring. The student learns to analyze and interpret different types of creative literature and is introduced to various critical techniques. At the more advanced level, literature courses may emphasize a single author, a generation, or a genre within a historical period. The content of these courses changes yearly according to the interests of both faculty and students. Senior seminars are offered periodically to discuss literary problems which cannot be dealt with in depth in the regular offerings.

Courses in civilization and culture explore aspects of French history, intellectual thought, and the arts. Courses are offered with a historical emphasis (for instance, The World of the Renaissance in France; The Age of Louis XIV) and with a comparative orientation (for instance, Poetry and Painting; Fantastic Art and Literature; Movie and Novel).

Courses in linguistics introduce students to aspects of the structure of the French language and to the application of linguistic techniques to problems of literary analysis.

Students are placed in elementary and intermediate courses according to their years of previous study and their grades; no placement examination is given. One year of high school is equated with one quarter of work at UCI. A student may not go back more than one quarter and receive credit.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: See page 116.

Departmental Requirements

French major with emphasis in Literature: French 11, 100A-B, 101A-B-C, and eight other upper-division courses taught in French, at least six of which must be in literature.

French major with emphasis in Linguistics: French 11, 100A-B, 101A-B-C, two courses in French civilization, Linguistics 50, 101, 102, 103, French 113, French 131. Prospective elementary and secondary school teachers who choose this option should take as electives more courses in French language, civilization, and/or literature. Work in French civilization is required by state credentialing authorities.

French major with emphasis in Culture and Civilization: French 11, 100A-B, 101A-B-C, and eight other upper-division courses taught in French, at least four of which must be in civilization and culture.

Planning a Program of Study

The student and the faculty advisor (assigned upon entering the major) should plan a coherent program of courses to fulfill either the literature, the linguistics, or the culture and civilization emphasis during the junior year.

The Department encourages the student to study in France, either through the University's Education Abroad Program or independently. Information is available in the Department Office.

Students should consult with the departmental coordinator of advisors concerning career plans in the areas of teaching, industry, journalism, law, civil service, etc.

UNDERGRADUATE PROGRAM IN ITALIAN

Third- and fourth-year offerings provide an introduction to Italian literature and culture. This material also serves as a basis for training in composition, conversation, and phonetics.

Tutorial and seminar courses are available for advanced students. Students are encouraged to pursue their interests through a major in Humanities which combines Italian literature, culture, history, art, and music.

GRADUATE PROGRAM IN FRENCH

The Department stresses understanding rather than encyclopedic knowledge, experimentation with various critical approaches rather than the perpetuation of a tradition, creativity rather than conformity.

Master of Arts in French

The Master of Arts degree is considered to be a step towards the Ph.D. degree; only students intending to pursue studies for the doctorate are admitted to the program. The Master's examination functions as a qualifying examination for the doctoral program. Most candidates take a minimum of eleven graduate courses, with at least six in literature, one in linguistics, and one in writing and style. Particularly well-prepared students may receive special permission to take a minimum of nine courses and to write a short thesis, for which two course credits are given. Individual programs are arranged in consultation with the graduate advisors. Proficiency in a foreign language other than the major language is required (proficiency is defined as the equivalent of the level attained at the end of course 2C).

All M.A. candidates are required to pass a written and oral examination. The student writes essays demonstrating ability to discuss literary texts — which may or may not have been part of the class program — and establishing relationships between literary works of different periods, genres, or authors.

The Master's examination is given in mid-fall quarter and at the end of winter quarter. Students who are Teaching Assistants normally take the examination in the fifth quarter of their studies.

Doctor of Philosophy in French

Upon successful completion of the qualifying examinations and admission to the Ph.D. program, or admission with a Master's degree from an accredited institution, a Guidance Committee is appointed to advise the candidate in the choice of courses and to help prepare for the comprehensive examinations and the dissertation. The examination committee is composed of five members, one of whom is in another department, in fields closely related to the student's interest and projected area of specialization; one member of the committee will be expected to direct the dissertation.

Language Requirements: A reading knowledge of two foreign languages relevant to the student's area of specialization and subject to the approval of the Guidance Committee.

Course Requirements: A minimum of eighteen graduate courses or seminars in French beyond the B.A. including a course in literary criticism; two graduate courses in French linguistics; and a minimum of three graduate courses out-

side the Department in areas related to the field of specialization.

Teaching: Since the overwhelming majority of Ph.D. candidates plan to teach, the Department recognizes its responsibility to train them as teachers. Therefore, as far as it is possible, all candidates without previous teaching experience are required to participate in a program of supervised teaching for at least one year.

Comprehensive Examination – Written and Oral: The written part of the comprehensive consists of a series of open-book examinations involving clearly defined problems of a critical or historical nature. The student may be given from one to three days to answer any part of the examination. The oral part of the comprehensive assesses the student's knowledge of French literature and understanding of a given literary movement. The student will be examined on (a) five of the following six periods of French literature: Medieval; sixteenth century; seventeenth century; eighteenth century; nineteenth century; twentieth century; or four of these periods plus the development of a single literary genre through all periods of French literature; (b) a given literary movement (e.g., romanticism, baroque, etc.) in a non-French literature.

Dissertation: The dissertation topic chosen by the candidate will normally, but not necessarily, fall within one of the major fields covered by the qualifying examination. The dissertation must be defended in an oral examination and approved by the Doctoral Committee before the candidate is recommended for the degree.

Three faculty members, chosen by the candidate, proposed by the Department, and appointed by the Graduate Council constitute the Doctoral Committee which directs the preparation and completion of the doctoral thesis. The Doctoral Committee supervises a final examination, the focus of which is the content of the doctoral thesis. The Doctoral Committee certifies that a completed thesis is satisfactory through the signatures of the individual Committee members on the title page of the accepted thesis.

FRENCH AND ITALIAN FACULTY

Franco Tonelli, Ph.D. Louisiana State University, *Associate Professor of French and Italian and Chairman of the Department*

Howard A. Appel, M.A. University of Washington, *Supervisor of Teacher Education – Foreign Languages and Lecturer in French*

David Carroll, Ph.D. The Johns Hopkins University, *Assistant Professor of French*

James Chiampi, Ph.D. Yale University, *Assistant Professor of Italian*

Judd D. Hubert, Ph.D. Columbia University, *Professor of French*

Renée Riese Hubert, Ph.D. Columbia University, *Professor of French and Comparative Literature*

Alice M. Laborde, Ph.D. University of California, Los Angeles, *Associate Professor of French*

Leslie W. Rabine, Ph.D. Stanford University, *Assistant Professor of French*

Richard L. Regosin, Ph.D. The Johns Hopkins University, *Associate Professor of French*

Aliko Songolo, Ph.D. University of Iowa, *Assistant Professor of French*

Bernard Tranel, Ph.D. University of California, San Diego, *Assistant Professor of French Linguistics*

LOWER-DIVISION COURSES IN FRENCH

1A-B-C Fundamentals of French (5-5-5) 1A (F), 1B (W), 1C (F, S)

Students are taught to think in French as they learn to understand, read, write, and speak. Classes are conducted entirely in French and meet daily. Language Laboratory attendance is required.

2A-B-C Intermediate French (4-4-4) 2A (F, W), 2B (W, S), 2C (F, S)

Texts of contemporary literary or social interest provide the focus for more advanced conversation, reading, and composition. Classes are conducted entirely in French. Prerequisite: normally three years of high school French or one year of college French.

11 French Phonetics (4) W

Prerequisite: French 2C or equivalent.

13 Conversation (4) F, W, S

Prerequisite: French 2C or equivalent.

UPPER-DIVISION COURSES IN FRENCH

100A-B Composition and Grammar Review (4-4) 100A (F, W), 100B (W, S)

Systematic review of grammar with written compositions of themes from readings chosen to introduce the student to aspects of literary analysis – prose and poetry. Prerequisite: completion of French 2C or equivalent; 100A or equivalent is the prerequisite for 100B.

101 Introduction to French Literature

In this series of courses students learn to analyze and interpret creative literature by genre and are introduced to various critical techniques. Whenever possible, 100A-B should be taken before 101A-B-C.

- 101A Introduction to Poetry (4) F
 101B Introduction to Theater (4) W
 101C Introduction to Novel (4) S
 105 Advanced Composition and Style (4) S
 Prerequisites: 101A-B.

The prerequisite for the following upper-division courses, except French 113 and 131, is French 101A-B-C or the equivalent. The content of these upper-division courses changes yearly. Students should consult the offerings in linguistics under the Program in Linguistics. Note: Courses numbered 110A-B-C through 180A-B-C, except 113, may be repeated for credit.

- 110A-B-C French Civilization (4-4-4) F, W, S
 112A-B-C French Culture (4-4-4) F, W, S
 This sequence is appropriate for majors emphasizing either literature or civilization.
 113 Introduction to French Linguistics (4)
 115A-B-C Medieval Literature and Culture (4-4-4)
 116A-B-C Sixteenth-Century French Literature (4-4-4)
 117A-B-C Seventeenth-Century French Literature (4-4-4)
 118A-B-C Eighteenth-Century French Literature (4-4-4)
 119A-B-C Nineteenth-Century French Literature (4-4-4)
 120A-B-C Twentieth-Century French Literature (4-4-4)
 125A-B-C African Literature of French Expression (4-4-4)
 130 Junior-Senior Seminar in French Literature (4) S
 Prerequisites: two upper-division literature courses beyond French 101.
 131 Junior-Senior Seminar in Linguistics (4)
 Prerequisite: Linguistics 50 or consent of instructor.
 140A-B-C Readings in French Literary Genre (4-4-4) F, W, S
 150A-B-C Topics in French Literature and Culture (4-4-4)
 In English. May not be counted towards the major.
 160 French Cinema (4)
 In English.
 199 Special Studies in French (4-4-4) F, W, S
 By consent and arrangement. To be taken only when the materials to be studied and the topic to be pursued lie outside the departmental offerings, when the student will have no formal chance in the course of several years to pursue the subject of interest, and when the subject fits significantly into the student's major program. Before enrolling in this course, the student must have the consent of the instructor and the Department Chair. To obtain consent the student must submit a written description of the course to the Chair prior to the end of the first week of classes.

GRADUATE COURSES IN FRENCH

The content of these courses changes yearly. Students should also consult the offerings of the Program in Linguistics.

In addition to the following courses, graduate students in French might find these Humanities courses of special interest: Humanities 200 (Historical Theory and Analysis), Humanities 210 (Topics and Methods in Linguistics), Humanities 220 (Literary Theory), and Humanities 230 (Philosophical Analysis).

- 200 Selected Topics in French Linguistics (4)
 May be repeated.
 201 History of the French Language (4)
 202 Contrastive French Phonology (4)
 203 Contrastive French Morphology and Syntax (4)
 208 Stylistics (4)

Note: Courses numbered 210A-B-C through 252A-B-C may be repeated for credit.

- 210A-B-C Studies in Medieval Literature (4-4-4)
 216A-B-C Studies in Renaissance Literature (4-4-4)
 217A-B-C Studies in Baroque and Classical Literature (4-4-4)
 218A-B-C Studies in Eighteenth-Century Literature (4-4-4)
 219A-B-C Studies in Romanticism and Symbolism (4-4-4)
 219D-E Studies in Naturalism and Realism (4-4)
 220A-B-C Contemporary Novel (4-4-4)
 221A-B-C Contemporary Poetry (4-4-4)
 222A-B Contemporary Theatre (4-4)
 230 Studies in Dramatic Literature (4)
 231 Studies in Fiction (4)
 232 Studies in Nonfictional Prose (4)
 233 Studies in Poetry and Poetics (4)
 240 Studies on a Major Writer (4)

The following three courses are given as a three-year sequence in the intellectual backgrounds of French literature and in the theory of literature:

- 250A-B-C Intellectual Backgrounds of French Literature (4-4-4)
 Not offered 1977-78.
 251A-B-C Theory of Literature I (Comparative Methods) (4-4-4)
 Not offered 1977-78.
 252A-B-C Theory of Literature II (Study of Genre) (4-4-4) F, W, S
 260A-B Literary Criticism (4-4)
 270 Writing and Style (4)

280 Directed Study in French Literature (4) F, W

Restricted to graduate students taking the Master's examination the same quarter.

290 Research in French Language and Literature (4-4-4) F, W, S

For all 290s a project proposal must be written up by the student and approved by the faculty member who will direct the project. This proposal, with the faculty member's signature, must be given to the Chair for approval and put in the student's file. This procedure must be completed before or after registration or at the very latest by the end of the first week of classes. After the end of the first week no 290s can be approved. M.A. candidates may take this course once; Ph.D. candidates may take it twice.

299 Dissertation Research (4 to 12) F, W, S**399 University Teaching (4-4-4) F, W, S**

A course required of and limited to Teaching Assistants.

LOWER-DIVISION COURSES IN ITALIAN**1A-B-C Fundamentals of Italian (5-5-5) F, W, S**

Students are taught to think in Italian as they learn to understand, read, write, and speak. Classes are conducted entirely in Italian and meet daily. Language Laboratory attendance is required.

2A-B-C Intermediate Italian (4-4-4) F, W, S

Texts of contemporary literary or social interest provide the focus for more advanced conversation, reading, and composition. Classes are conducted entirely in Italian. Prerequisites: normally three years of high school Italian or one year of college Italian.

UPPER-DIVISION COURSES IN ITALIAN**100A-B Italian Language and Civilization (4-4) F, W**

Systematic review of grammar with written and oral composition on topics chosen from readings on Italian culture and civilization. Prerequisite: completion of at least Italian 2A or equivalent.

101 Introduction to Italian Literature

In this series of courses students learn to analyze and interpret creative literature by genre and are introduced to various critical techniques.

101A Introduction to Poetry (4) F**101B Introduction to Theatre (4) W****101C Introduction to Novel (4) S****140A-B-C Readings in Medieval and Renaissance Literature (4-4-4) F, W, S****150 Topics in Modern Italian Culture (4)**

In English; no prerequisites. May be repeated.

160 Italian Cinema (4)

In English. May be repeated.

199 Tutorial in Italian Literature and Culture (4-4-4) F, W, S

Department of German

The Department of German sees its contribution in the context of the humanistic endeavor to understand and evaluate Western culture. We can understand ourselves and our immediate culture more clearly through the study of allied and diverse languages and cultures. The study of German (which is closely related to English) and a comparative study of the historical and social development of German-speaking peoples provide the student with another aspect of our common culture. The Department offers courses on the German language and on German literature. The study of German literature is pursued from various critical perspectives. Some courses emphasize its historical, social, and political significance and setting; in others literature is approached as an imaginative experience which transcends its immediate context. The history of German literature and criticism, the theory of literature and literary criticism, and the relations of German literature to other literatures are also studied in the Department's courses.

UNDERGRADUATE PROGRAM

The German major offers alternative emphases, one in literature and another in linguistics.

All courses in the Department are taught in German to the extent compatible with the aim of the course. In the basic courses the student will develop an understanding of the nature of the language, based on linguistic principles, while learning the necessary skills. Use will be made of the Language Laboratory. At the end of the first year, students will have attained mastery of the basic structure of the language.

At the intermediate and advanced levels the student's ability to read and write German will be gradually developed. A third-year course of two quarters will stress composition as opposed to translation. It will be followed by a course in phonetics which will aim to perfect the pronunciation as well as to introduce historical and dialectal variants. The introductory course in literature, also in the third year, will present a first view of some periods of German literary history, familiarize the student with German terminology used in the interpretation of literature, and use these concepts in practical interpretations. A certain number of courses in the series German 117, 118, 119, 120 will be designated as "core courses" which are especially recommended for

majors. It is assumed that the student is familiar with basic concepts of literature in English.

Students are given the opportunity to participate in programs of study abroad during the summer and the junior year in Göttingen.

Students entering UCI with previous German training will be given advanced standing as follows: In general, one year of high school work is equated with one quarter of UCI work. Thus students with one, two, three, and four years of high school German will normally enroll in German 1B, 1C, 2A, and 2B respectively. Exceptions to this placement procedure must have the approval of the director of first- or second-year German instruction.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: See page 116.

Departmental Requirements

German Major with Literature Emphasis: German 100A-B-C; German 101; eight courses drawn from German 102-199, the selection to be approved by the student's advisor; at least one course selected from the following: Linguistics 50; Comparative Literature 50A-B-C; courses in German history and German philosophy (advisor's approval required).

Students who plan to acquire a teaching credential, or intend to do graduate work in literature, are encouraged to take the major with literature emphasis.

German Major with Linguistic Emphasis: German 100A-B-C; German 101; four literature courses drawn from German 102-199, to be approved by the advisor; German 180; Linguistics 50, 101, 102; at least one of the following: Linguistics 103; Introduction to Middle High German or History of the German Language (these courses are offered under German 220).

The German major with linguistic emphasis is recommended especially for students who intend to do graduate work in linguistics or enter a linguistics-related profession.

GRADUATE PROGRAM

In its graduate courses the Department stresses theoretical understanding of the nature of literature in its specific application to literature written in the German language.

Courses also are offered elucidating the structure and history of the German language.

The German Graduate Program is essentially a program leading to the Ph.D. The M.A. requires a minimum of one year in academic residence and must be completed in no more than two years of graduate study.

Master of Arts in German

Before entering the program, a candidate is expected to have the equivalent of our undergraduate major. Students with a bachelor's degree in another subject may be considered for admission. Normally, their course of studies will have to be extended in order to make up for the deficiency. However, each case is considered individually by the faculty. The minimum course requirement for the M.A. degree is nine courses, eight of which must be taken within the Department of German. Reading knowledge of a foreign language other than German also is required for the M.A. degree. Further requirements are:

The Preparation of a Reading List

All candidates should prepare as early as possible a list of works read in the field of German literature, e.g., both primary texts and critical works. This list should preferably be augmented by critical texts and by works from other literatures which, in the candidate's opinion, relate to the German works in the list. Since it should ultimately contain representative selections from various eras of German literature and some works of criticism, a tentative list must be discussed with the graduate advisor before the end of the fall quarter. Candidates should indicate on the list a number of works with which they are especially familiar. In its final form (e.g., including works read during the year both in and out of class) the list will be submitted together with the essay two weeks before the oral examination. It is the student's responsibility to keep the reading list current.

The Master's Essay

The purpose of the written part of the M.A. comprehensive examination is to show the candidate's methodological progress in interpreting German literature. It consists of an essay in which a text is elucidated and related to a) pertinent works by the same author, b) its social and historical context, and c) other works of German or other literatures with which the candidate is familiar. The level of the discussion will normally be enhanced by the candidate's knowledge of the relevant secondary literature. The topic of the essay should be tentatively formulated and reported to the graduate advisor before the end of the second quarter of the student's residence.

The Oral Examination

During the oral examination the following items will be discussed: a) the essay; b) the reading list. The discussion based on the reading list will focus on works which the student knows well, but may broaden into other areas.

One Course in University Teaching (399)

One Year of Residence

Ph.D. in German

The Department requires a minimum of 24 approved courses from students entering with a bachelor's degree. Students entering with the master's degree will be advised individually as to remaining course requirements. These may include courses in philosophy, history, comparative literature, etc., suitable for the individual student's program of study. The Introduction to Middle High German and one course in medieval German literature are required. The student also will enroll in each of the German Department's colloquia. The student will augment the reading list and keep it current during the whole course of study. At least two years of residence are required.

Since the majority of Ph.D. candidates choose careers as teachers, the German Department recognizes its obligation to offer them preparatory experience. Therefore, all candidates for the Ph.D. without previous teaching experience will teach under the supervision of a faculty member at least one course in each of three quarters for which they will receive credit as German 399. Three of these courses may be counted towards the 24 required courses for the Ph.D.

Comprehensive Examination

There are two parts to the examination. The student will choose either 1) to present from notes a lecture to the faculty and to the other graduate students, or 2) to write an open-book essay. The essay or the lecture will be on a text or texts selected by the faculty from a reading list submitted by the student after consultation with the advisor. The second part is an oral examination of two to three hours' duration ranging over the whole field of the student's studies. The student will submit the reading list two weeks before the examination.

Language Requirements

The candidate will demonstrate reading competence in two languages or extensive competence in one language other than German or English. Choice of this language depends

on the student's area of specialization. For the various ways in which these requirements may be fulfilled, the student should see the graduate advisor.

Dissertation

Towards the end of the second year of study, the student should formulate a tentative dissertation topic. At this time the faculty will evaluate the student's general progress towards the Ph.D. degree. Three faculty members proposed by the Department and appointed by the Graduate Council constitute the Doctoral Committee which directs the preparation and completion of the dissertation. The Doctoral Committee certifies that a completed dissertation is satisfactory through the signature of the Committee members on the title page of the dissertation.

GERMAN FACULTY

Thomas P. Saine, Ph.D. Yale University, *Professor of German and Chairman of the Department*

Ruth Angress, Ph.D. University of California, Berkeley, *Professor of German*

Ruth Ann Crowley, Ph.D. Stanford University, *Assistant Professor of German*

Anton Kaes, Ph.D. Stanford University, *Assistant Professor of German and Comparative Literature*

Meredith Lee, Ph.D. Yale University, *Assistant Professor of German (on leave F)*

Herbert Lehnert, Ph.D. University of Kiel, *Professor of German (on leave)*

William J. Lillyman, Ph.D. Stanford University, *Professor of German and Dean of the School of Humanities*

Bert Nagel, Ph.D. University of Heidelberg, *Emeritus Professor of German*

Wilfried M. Vogt, Ph.D. University of California, Berkeley, *Assistant Professor of German and Linguistics*

LOWER-DIVISION COURSES

A student may take any one of the four first-year courses: German 1A-B-C; R1A-B-C; 10A-B-C; 11.

1A-B-C Fundamentals of German (5-5-5) F, W, S

This course is designed to develop the basic language skills of understanding, speaking, reading, and writing. Classes are conducted in German. Language Laboratory attendance is required. Open to nonmajors.

R1A-B-C Fundamentals of German (with emphasis on reading) (5-5-5) F, W, S

The purpose of this course is to serve those students not planning to major in German who want to develop their reading ability in German rapidly. Open to nonmajors.

10A-B-C Fundamentals of German, Individualized Instruction (2-5, 2-5, 2-5) F, W, S
 Course covering the material of German 1A-B-C. Students work at their own pace. Regular consultation with an instructor. Open to nonmajors.

11 Intensive Individualized Instruction (10) W
 An intensive self-paced program covering the material of German 1A-B in one quarter. Regular consultation with an instructor. Small group activities, film, laboratories. Conducted in German. Open to nonmajors.

2A-B-C Intermediate German (4-4-4) F, W, S
 Conversation, reading, and composition skills are developed using texts of literary and social interest. Intensive review of grammar. Conducted in German. Open to nonmajors. Prerequisite: German 1C.

53 Advanced Conversation (2)
 Practice in advanced conversation, reading of political and cultural material. Prerequisite: German 2C.

UPPER-DIVISION COURSES

100A-B Advanced Composition (4-4) F, S
 The aim of these courses is to help the student develop competence in writing expository German. Prerequisite: German 2C.

100C German Phonetics (4) W
 Contrastive analysis of the sounds of English and German. Particular emphasis on the practice of standard German pronunciation. Prerequisite: German 2C.

101 Introduction to Literature (4) F
 Sample interpretations of poetry and prose. Introduction to critical language in German. Prerequisite: German 2C.

102A Literature and Society Since World War II (4)
 Interdisciplinary introduction to recent German literature not only as an aesthetic phenomenon but also as a social and political force. Methodological problems arising from an analysis of literature in its historical context. Prerequisite: German 101 or consent of the instructor. Not offered 1977-78.

102B Literature and Society 1918-1945 (4) W
 See above description. Prerequisite: German 2C or consent of the instructor. Not offered 1978.

Courses numbered 117 to 199 may be repeated provided course content changes. German 101 or consent of instructor is prerequisite for courses 117-120.

117 Topics in German Literature 750-1750 (4)
 Specific course content will be determined by individual faculty members. Example: Literary and Polemical Writing of the Reformation.

118 Studies in the Age of Goethe (4)
 Course may deal with individual authors such as Lessing, Goethe, Schiller, Kleist, and Hölderlin or the drama of the "angry young men" of the German 1770s. Not offered 1977-78.

119 Studies in Nineteenth-Century German Literature (4)
 Course may deal with individual authors such as Büchner, Grillparzer, Keller, and Nietzsche or study broader social-literary phenomena such as the Viennese Folk Theater.

120 Studies in Twentieth-Century German Literature (4)
 Course may deal with individual authors such as Thomas Mann, Brecht, Kafka, Rilke, Grass, or address questions of genre such as the drama of German Expressionism.

130 Topics in German Literature (4)
 Reading of literary works not fully contained within the periods listed above, such as "German Comedy," "The Novel from Wieland to Fontane." Not offered 1977-78.

150A-B-C German Literature in Translation (4-4-4) F, W, S
 Reading of major German literary works, 1750 to the present, in translation. Open to nonmajors.

199 Special Studies in German (4) F, W, S

GRADUATE COURSES

All graduate courses offered in the Department will fall under the following generic headings. All courses may be repeated, provided course content changes.

200 Literary Criticism (4)

210 Literary Theory (4)

220 Selected Topics in German Linguistics (4)

230 Literary and Cultural History (4)

240 Colloquium (2-2) W, S
 Not offered 1978.

299 Tutorial (4) F, W, S

398A-B The Teaching of German (2-2) F, W
 Required of all Teaching Assistants in the German Department. Also open to present and prospective German instructors who are not Teaching Assistants.

399 University Teaching (4-4-4) F, W, S
 A course required of and limited to Teaching Assistants.

Department of History

UNDERGRADUATE PROGRAM

The undergraduate program in History is designed to develop critical intelligence and to foster an awareness of ourselves and our world through the study of the past. The Department offers a variety of approaches to history, each emphasizing basic disciplinary skills: weighing evidence, analyzing historical problems, exploring the role of theory, and improving expository writing.

All History majors participate in two kinds of introductory courses. The first (History 29A-B-C) is a comparative course that acquaints students with the modern world by examining some of the basic characteristics of modernity and by focusing on the historic process of modernization in several different societies. The second (one course from History 100A, 100B, 100C, or 100D) is an introduction to the discipline of history: the history of historical writing, the problem of conceptualization, and the relationship of theory and evidence.

From these introductory courses the student moves on to a series of upper-division courses, the contents of which range from the examination of individual nation-states (e.g., British History), to studies of the relations among nation-states (e.g., European International History), to analyses of political, socio-economic, and cultural factors as they have developed through time (e.g., The Supreme Court and Social Change, The Darwinian Revolution). The Department also offers courses in Comparative History organized around such themes as science and technology, race and class, the family, war, popular and elite culture, industrialization, revolutions, ideologies, and cities. Finally, seminars for seniors focus on a particular aspect of more general phenomena (i.e., France: May, 1968). The Department offers students the possibility of structuring their course work with emphasis on courses in social theory or courses in comparative history. These courses provide designs for bringing a definite focus to the undergraduate major.

The training and discipline of history provides students with a useful preparation for subsequent professional, political, and social life. Many professional schools, in areas such as law, medicine, and business administration, look favorably upon highly qualified students with a background in history. History majors have found useful application of their studies in these careers, as well as in state and local government, elementary and secondary education, librarianship, journalism, and data-gathering and evaluation occupations. Moreover, graduates report that a historical perspective has been invaluable in helping them to understand the decision-making processes of contemporary society.

A Summary Statement of the Undergraduate Major

Twelve courses: the three-quarter lower-division sequence; one Historiography course; six upper-division courses (may include one "Independent Study"); one two-quarter Senior Seminar.

Note: At least three upper-division courses must be related

to the area in which the students will select their Senior Seminar. Students who have graduate work in mind are urged to attain a reading knowledge of a modern European language by their senior year and to arrange to use it in the seminar.

The Department of History seeks to work closely with its students. Five student representatives — three undergraduates, one graduate, and one Teaching Assistant (each elected by their respective constituencies), sit regularly with the faculty at its Department meetings and serve on major Department committees. Students also play an important role in the evaluation of teaching by the faculty and Teaching Assistants. Each upper-division student is assigned a faculty advisor in the Department. Students are encouraged to see their advisors at least twice each quarter.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: See page 116.

Departmental Requirements

History 29A-B-C or, for transfer students, a year-long survey in broad fields of History (European, American, African, Asian, Latin American, i.e., areas studied as continents); seven additional upper-division courses, including one Historiography (100A, 100B, 100C, or 100D, which should be taken in the junior year); History 190A-B (Senior Seminar).

GRADUATE PROGRAM

The graduate program in History is designed to provide students with both basic historical skills and a rigorous grounding in social and other comparative theory. This combination of theoretical study with training in historical method reflects the Department's conviction that students should be encouraged to deal with broad questions about the past and to approach these questions in a methodologically sophisticated way. This approach requires that the scholar develop the critical abilities necessary to deal with primary sources, secondary syntheses, and the interrelationship of history and theory. Candidates for any advanced degree in History are expected to gain teaching experience as an integral part of their graduate training. Ordinarily this is accomplished through service as a Teaching Assistant or Associate.

Basic to the Department's curriculum is a year-long course in History and Theory which deals with both theoretical

texts and historical studies that have tested the theorists' concepts and models. The History and Theory course also examines the phenomenon of modernization, the general world transformation of the past four hundred years, and seeks to understand the social institutions through which this process occurred and continues. The course directs attention to the diverse implications of modernity in the modern world, to the groups which dominated the process and those whose destinies were determined by it, and to the costs and benefits the process has produced. These matters can be studied most satisfactorily by the historian whose theoretical self-consciousness and methodological facility have been systematically and carefully developed. The History and Theory course is directed to achieve such development.

Another kind of course, the year-long focus seminar, familiarizes the student with one of several approaches to history, the modes in which it has been written, and the methodologies available. At the same time it makes it possible for the student to begin to carry out a project of original research. Currently, the Department offers seminars in social, intellectual, political, and international history.

The colloquium, the third type of course, is a reading course that examines the chief historical works in a time-place field. This course enriches the student's knowledge of the main areas of historical research and develops critical reading skills. Colloquia are offered yearly in U.S. history and Modern European history, and biannually in Early Modern European history, Latin American history, and Ancient history. A student may prepare a dissertation in any of these fields.

A fourth course, "Careers in History," is offered each fall quarter for doctoral candidates seeking employment in the near future; it is designed to introduce them to the nature of the academic marketplace and to provide information regarding career alternatives for professional historians. The student will be informed about the proper compilation of a curriculum vitae and the effective presentation of oneself in an interview situation.

Finally, independent reading and research courses are provided for advanced, specialized study in a tutorial form.

The immediate objective for the doctoral student is to develop four fields of competence in preparation for comprehensive examination. These fields are: History and Theory; First Time-Place Field (field in which the dissertation is written); Second Time-Place Field; Focus Field.

The subsequent objective, to write a distinctive dissertation, is of crucial importance. To assist in accomplishing both objectives, the Department, with its modest size, can offer intensive consultation with the faculty, as well as a lively intellectual atmosphere. Students participate in the decision-making process of the Department which engages the entire historical community at Irvine in a collective pursuit of excellence. They profit also from a vigorous visiting speakers program which brings scholars from other campuses and other nations to meet and interact with students and faculty.

Master of Arts in History

Requirements for Admission

Though it is desirable that an applicant have the equivalent of an undergraduate major in History, the Department also welcomes students who have previously specialized in other subject areas and who show promise of sustained and self-disciplined work in History. Typically, a minimum undergraduate grade point average of 3.0 (B) is required for admission, with evidence of better work in History. In addition, all applicants are asked to submit three letters of recommendation, aptitude scores from the Graduate Record Examination, and examples of written work in History from their undergraduate classes. Students living in Southern California must arrange to come to UCI for an interview with the Department Chair or the Coordinator of Graduate Advising.

Though the M.A. is an independent degree, it is the Department's policy at present to admit only those students who will pursue both the M.A. and Ph.D. Students are admitted for fall quarter only, and the deadline for application for fall admission is April 1.

Program of Study

Nine courses are required for the degree: three in History and Theory (History 200A-B-C), three in "time-place" colloquia (taken in sequence, as a unit), and three in a "focus" seminar (taken in sequence as a unit). Though it is possible to take these nine courses in one academic year, the Master's student is encouraged to proceed at the same rate as the doctoral student (see below), that is, by taking History and Theory, colloquia, and electives during the first year and the "focus" seminar and electives during the second. Students intending to pursue the Ph.D. should begin at once to delineate doctoral interests in order to fit their work for the M.A. into the total program.

Language Requirements

Normally a reading knowledge of one useful foreign language is required for the M.A. degree. However, an individual in American History, with an advisor's permission, may substitute a sequence of courses in communications science, statistics, or comparable studies for the M.A. foreign language requirement. Language proficiency can be demonstrated either by achieving a score of at least 500 on the appropriate ETS examination or by passing a department test at Irvine.

Award of the M.A. Degree

The M.A. student applies for advancement to candidacy for the M.A. degree at the end of the quarter before the quarter in which the nine required courses will be completed. Subsequently, at the end of the final quarter, the student must pass a comprehensive examination on the material studied in the three-quarter focus seminar.

Time Limits

In no case will the Department allow a student more than nine academic quarters in which to complete the M.A. degree.

Doctor of Philosophy in History

Requirements for Admission

Continuing students must have completed their M.A. courses and satisfactorily passed a second-year departmental evaluation in order to be admitted to the doctoral program.

New students must undergo a more formal admissions procedure, submitting transcripts, letters (three), papers, and aptitude scores from the Graduate Record Examination. These documents must be supplemented by an interview whenever possible.

Note: It would be advisable for the potential doctoral student to begin graduate work on this campus, since the doctoral student who has taken the M.A. elsewhere will be expected to enroll in the same courses required of incoming M.A. students (greater experience will work to advantage later, in the second and third years, in speeding the student to exams).

Note also: Incoming students are admitted for fall quarter only, and the deadline for application for fall admission is April 1.

Program of Study

The Department requires doctoral students to prepare themselves in four different areas:

History and Theory.

The first "time-place" field (such as Modern Europe), which is designed as a teaching field as well as the locus of the student's dissertation.

The second "time-place" field (such as American History), which is designed as a second teaching field.

A "focus" field (such as social history, etc.), which is designed to enhance the student's capability for dealing with the problems and phenomena of the field, to make comparisons and to introduce the student to the theory and method of relevant related disciplines (e.g., sociology).

The courses required in this preparation include the History and Theory sequence, colloquia series in both time-place fields, and the three-quarter focus seminar. Beyond these, the remainder of the student's program during the first six quarters of residence will consist of those colloquia, seminars, and courses in Special Studies (including History 398) with which the student prepares for examinations and by which the student can attain the normal academic load of three courses per quarter.

Every doctoral student will be assisted by a departmental advisor in the same general area of study who will be responsible for approving defined fields, guiding the student to consultant faculty, and arranging and giving the examinations.

Language Requirements

All students, except as specified below, must demonstrate a reading knowledge of one useful foreign language no later than the end of the second year in the program. Normally, the M.A. foreign language requirement will serve, but proficiency can also be established by a score of at least 500 on the appropriate ETS exam or by passing a department test. Students in American History who have opted for a language substitute in completing the UCI Master's degree will be allowed to submit this work in fulfillment of "further 'special skill' requirements" (see below) and will not be subject to the time limit in achieving a foreign language competence.

Further "Special Skill" Requirements

These depend on the subject the student selects for the first "time-place" field:

An individual with a first "time-place" field in American History may either demonstrate a reading knowledge of a second useful foreign language (by achieving an ETS score of 500 or by passing a language test designed by the advisor), or complete, as a doctoral student, a sequence of courses in an area of study (e.g., communications science, statistics, computer work, content analysis, linguistics) that will be useful in mastering the chosen historical fields.

An individual with a first "time-place" field in a non-American subject must demonstrate a reading knowledge of a second useful foreign language. This may be done either by achieving an ETS score of 500 or by passing a language test arranged by the advisor.

The Qualifying Examinations and Dissertation

After completing the appropriate courses and other preparatory work (normally eight to nine quarters after beginning the M.A. at Irvine, or seven to eight quarters after having entered the Ph.D. program from the outside), the student will take written examinations in the History and Theory and two "time-place" fields, and, following this, will take a qualifying oral examination in the "focus" field, first "time-place" field, and dissertation topic. After having passed these examinations, the student will be advanced to candidacy and will begin intensive work upon the dissertation. The research and writing involved in this effort can be expected to require from one to two years. At the end of this period an oral defense of the dissertation will be held, focusing entirely upon the adequacy of the student's research and thesis.

HISTORY FACULTY

- Richard I. Frank, Ph.D. University of California, Berkeley, *Associate Professor of History and Classics and Chairman of the Department of History*
- Kendall Bailes, Ph.D. Columbia University, *Assistant Professor of History*
- Kenneth P. Bailey, Ph.D. University of California, Los Angeles, *Senior Lecturer in History and Education and Director of Teacher Education*
- Jonathan S. Dewald, Ph.D. University of California, Berkeley, *Assistant Professor of History*
- John P. Diggins, Ph.D. University of Southern California, *Professor of History*

- Christine L. Heyrman, Ph.D. Yale University, *Assistant Professor of History*
- Lamar Mott Hill, Ph.D. University of London, *Associate Professor of History and Academic Assistant to the Vice Chancellor - Academic Affairs*
- Karl G. Hufbauer, Ph.D. University of California, Berkeley, *Associate Professor of History*
- Jon S. Jacobson, Ph.D. University of California, Berkeley, *Associate Professor of History*
- Michael P. Johnson, Ph.D. Stanford University, *Assistant Professor of History*
- Arthur J. Marder, Ph.D. Harvard University, *Emeritus Professor of History*
- Samuel C. McCulloch, Ph.D. University of California, Los Angeles, *Professor of History*
- Henry Cord Meyer, Ph.D. Yale University, *Professor of History*
- Keith L. Nelson, Ph.D. University of California, Berkeley, *Associate Professor of History*
- Patricia A. O'Brien, Ph.D. Columbia University, *Assistant Professor of History*
- Spencer C. Olin, Jr., Ph.D. Claremont Graduate School, *Associate Professor of History*
- Mark S. Poster, Ph.D. New York University, *Associate Professor of History*
- Jaime E. Rodriguez-O., Ph.D. University of Texas, *Associate Professor of History*
- Gerald T. White, Ph.D. University of California, Berkeley, *Professor of History*
- Jonathan M. Wiener, Ph.D. Harvard University, *Assistant Professor of History*

UNDERGRADUATE COURSES**University Courses**

Special studies of general interest for all students. No prerequisites.

6 Topics in Recent History (4-4-4) F, W, S

Historical analysis of forces which have shaped the contemporary world. Topics studied will include war, revolution, communism and anti-communism, and new attitudes towards sex, family, and race. Content will vary. Courses offered 1977-78: Contemporary U.S., F; U.S. Imperialism, W; Ecology and History, S; The Future: AD 2000, S.

9 Historical Problems (4-4-4) F, W, S

How historians define problems and answer them is shown through careful study of particular questions: e.g., Who Was Socrates? What Caused the Stalinist Purges? Why Did Magic Decline? Content will vary. Courses offered 1977-78: Aztec

Empire, F; California History, W; Film, Art, and Social Change, F; Slavery, W.

Introduction to Historical Study

29 The Formation of Modern Society

Presents a unified view of the histories of Europe, the United States, and Latin America, focusing on the general social transformation from traditional to modern industrial society.

29A Traditional Societies: 1300-1760 (4) F

29B The Impact of Industrialization: 1760-1900 (4) W

29C The Twentieth-Century Crisis: 1900-Present (4) S

100 Historiography, History and Theory

These courses focus on various aspects of the historical discipline: the character of scholarship in an era, the works of particular historians, Western humanistic and scientific historiography, and the role of social theory in historical thought. All courses in the 100 sequence satisfy the historiography requirement.

100A History and Historians (4)

Not offered 1977-78.

100B History as Art and Science (4) S

100C Classical Historians and Historiography (4)

Not offered 1977-78

100D History and Social Theory (4) W

The History of the Preindustrial West

110 The Ancient World

Studies in the rise of Greek cultures, their spread in the Mediterranean area, and the impact of the Roman Empire; special emphasis on Christianity and the Barbarians as conquerors of classical civilization. Not offered 1977-78.

120 Preindustrial Europe and its Expansion

A comparative survey, focusing on the social and economic bases of secular and ecclesiastical institutions.

120A The Christian Millenium: Rome and the Successor States (4)

Not offered 1977-78.

120B Feudal Society: Ideas and Institutions (4) F

120C Europe Transformed: The Reformation of State and Society (4) W

120D The Old Regime: Modernization and its Origin (4) S

121 Themes in Preindustrial History

Topical and comparative studies of western societies. Not offered 1977-78.

122 Regional and National Preindustrial History

These courses focus on "modernization" in long-term perspective, with special stress on feudal systems, state-building, secularization, absolutism, and enlightened despotism. Not offered 1977-78.

Modern European History

130 Modern and Recent Europe

A survey of European politics, diplomacy, economy, and culture since 1815.

130A Nineteenth-Century Europe (4)

Not offered 1977-78.

130B Twentieth-Century Europe (4)

Not offered 1977-78.

130C Europe Since 1945 (4) S

131 Modern European Constitutional and Legal History

National governmental systems, with emphasis on parliamentary processes, systems of law, and public administration.

131A England: Anglo-Saxon to 1485 (4) F

131B England: 1485 to the Present (4) W

131C Special Studies (4)

May be repeated.

132 Modern European Social and Economic History

Courses stress social and economic developments within single societies and across national lines.

132A Russian Society: Traditional Russia to 1687 (4)

Not offered 1977-78.

132B Russian Society: Peter the Great to 1905 (4)

Not offered 1977-78.

132C Russian Society: Revolution and Soviet Society (4)

Not offered 1977-78.

132D Special Studies (4)

May be repeated.

133 Modern European Intellectual and Cultural History

Courses in this series focus on the development of Western thought, with special emphasis on the period since the Enlightenment, but with attention to major traditions of the West derived from classical and medieval sources.

133D Western Traditions in Art and Society: The Kenneth Clark "Civilization" Films in Social Historical Context (4) F

133F Special Studies (4)

May be repeated.

134 Modern European International History

These courses focus on the European state system, stressing diplomacy and war in the context of general, cultural, economic, and political relations.

134D Topics in the British Commonwealth (4) S

134E Special Studies (4)

May be repeated.

135 Modern European National History

These courses provide broad surveys of particular countries and also more intensive study of the ideas and institutions of particular periods.

135A Nineteenth-Century Germany (4)
Not offered 1977-78.

135B Twentieth-Century Germany (4) F

135C British Traditions: Ideas and Institutions from the Restoration through the Victorian Age (4) F

135D British Traditions: Ideas and Institutions in the Twentieth Century (4)
Not offered 1977-78.

135H Special Studies (4)
Edwardian Society, England, 1901-1914; German Society in the Eighteenth Century. May be repeated.

Latin American History

153 History of Mexico

A social and cultural history from pre-Columbian civilization through the emergence of a colonial society with European institutions; independence and the search for stability; the Revolution of 1910 and the development of revolutionary social programs.

153D Special Studies (4) F
E.g., Aztec Empire. May be repeated.

American History

160 The Development of the American Nation

The growth and development of a distinctively American society out of the colonial heritage, with emphasis on the social and economic bases of culture and politics, sectionalism, industrialization, and the U.S. as a world power.

160A Colonial America (4) W

160B The American Revolution and the New Nation (4) S

160C Civil War and Reconstruction (4) F

160D The Age of Industry (4) W

161 American Political and Constitutional History
Not offered 1977-78.

162 American Social and Economic History

These courses focus on race, class, ideology, modernization, and reform movements, with special emphasis on social process and social stratification.

162E Special Studies (4) S

The 'new' social history, stressing families, urban and rural society, occupational and geographic mobility. May be repeated.

163 American Intellectual and Cultural History

Analysis of the ideas, belief-system, and values apparent in the nation's past.

163A Puritanism and the Enlightenment (4)

163B Transcendentalism and Civil War Crisis (4)

163C Pragmatism — The Lost Generation and the Old and New Left (4)

164 The History of American Foreign Relations

Studies of the evolving relationship between America and the world, with emphasis on the use and abuse of power. Not offered 1977-78.

165 Regional Studies in American History

Not offered 1977-78.

Comparative History

180 Topics in Comparative and Social History

These courses provide an opportunity for intensive study of certain problems and concerns arising out of the Department's core course, "The Formation of Modern Society."

180A Comparative Industrialization (4) F

180D Science and Society in Comparative Perspective (4)

180F Comparative Reform Movements: Reformation and Counter-Reformation (4)

180G War and Society in Comparative Perspective (4)
Not offered 1977-78.

180H Comparative Revolution: Russia, China, Mexico, and Cuba in the Twentieth Century (4)
Not offered 1977-78.

180I America in World Perspective: A Comparative Approach (4)
Not offered 1977-78.

180J Special Studies in Comparative History (4)

Also, please note the following courses, all of which are concerned with either comparative history, social history, or the history of modernization: 120A-B-C-D, 121, 130A-B-C, 160D, and 162E.

Senior Studies and Special Programs

The Senior Project forms the heart of the student's experience of historical study. Students should prepare for it by consulting their advisors on preparatory sequences, especially the "Special Studies" colloquia and their relationship to lecture-discussion courses and independent study units.

190A-B Senior Project (4-4) 190A (F, W), 190B (W, S)
Graded "IP."

195 Special Studies for Secondary School Teachers (4) W

197 Special Projects (4-4-4) F, W, S
By consent.

198 Experimental Group Study (4-4-4) F, W, S
By consent.

199 Independent Reading (4-4-4) F, W, S
By consent.

GRADUATE COURSES

In addition to the following courses, graduate students in History might find these Humanities courses of special interest: Humanities 210 (Topics and Methods in Linguistics), Humanities 220 (Literary Theory), and Humanities 230 (Philosophical Analysis).

History and Theory

200A-B-C History and Theory (4-4-4) F, W, S

An introduction to the role of theory in historical writing, focusing on several major theorists, their relation to their setting, the structure of their thought, and its application to significant historical issues. History 200A same as Humanities 200.

Colloquia

210A-B-C The Literature and Interpretations of Ancient History (4-4-4)

Study of the historiography of Antiquity (Ancient Near East, Greece, and Rome to A.D. 395). Analysis of selected problems, interaction of philology and social thought, and directions of contemporary research. Emphasis on the development of interpretations through scholarly dialogue. Not offered 1977-78.

220A-B-C The Literature and Interpretations of Early-Modern Europe (4-4-4) F, W, S

First quarter: Political; second quarter: Social/Economic; third quarter: Intellectual/Cultural.

230A-B-C The Literature and Interpretations of Modern European History (4-4-4) F, W, S

First quarter: 1789-1850; second quarter: 1850-1914; third quarter: 1914-1945.

250A-B-C The Literature and Interpretations of Latin American History (4-4-4) F, W, S

First quarter: Colonial Period; second quarter: Nineteenth Century; third quarter: Twentieth Century.

260A-B-C The Literature and Interpretations of American History (4-4-4) F, W, S

First quarter: The Seventeenth and Eighteenth Centuries; second quarter: The Nineteenth Century; third quarter: The Twentieth Century.

Seminars

280A-B-C Seminar in Socio-Economic History (4-4-4) F, W, S

Brief review of the current state of the literature, followed by practical experience in developing a problem statement, carrying out research, and writing a paper.

281A-B-C Seminar in Political History (4-4-4)

An overview of political theory, with practice in using it in the writing of history. Not offered 1977-78.

282A-B-C Seminar in Intellectual-Cultural History (4-4-4) F, W, S

Theory and problems in the writing of intellectual history, and its relation to social, economic, and political history.

283A-B-C Seminar in International History (4-4-4)

An introduction to theory relevant to the history of international relations, and an extended practicum in applying theory to selected research topics. Not offered 1977-78.

Special Studies

290 Special Topics (4-4-4) F, W, S

Lectures, readings, and discussion on subjects more limited in scope than those included in the year-long colloquia.

291 Directed Reading (4-4-4) F, W, S

By consent.

295 Special Methods (4-4-4) F, W, S

Courses designed to develop particular research skills.

298 Experimental Group Study (4-4-4) F, W, S

Open to four or more students. By consent.

299 Directed Research (4-4-4) F, W, S

By consent.

398 Careers in History (4) F

Designed to introduce doctoral candidates to the nature of the academic marketplace and provide information regarding career alternatives for professional historians.

399 University Teaching (4-4-4) F, W, S

A course required of and limited to Teaching Assistants.

Special Programs in the Humanities

UNDERGRADUATE MAJOR IN HUMANITIES

A student who is a major in the School of Humanities is not necessarily the same as a student who is a major in Humanities. The major in Humanities is only one of the options available to a student who wants to major in the School of Humanities. As such, the major in Humanities is on a par with the major in Spanish, the major in Classics, the major in Linguistics, etc. The major in Humanities accommodates students who want to organize their undergraduate education around a humanistic perspective on a topic, a field, or a problem which is interdisciplinary in scope (e.g., Literature and Politics in Twentieth-Century America; Social and Religious Thought in the Age of the Reformation). The student enters the program at the end of the sophomore year and, in consultation with the Humanities Major Committee, devises an individually tailored set of "major requirements," not all of which need be offered in the School

of Humanities. The Committee will assign an advisor on the basis of the student's own preference. At the end of the senior year the student will prepare, under the advisor's supervision, a long paper in the area of the special major. A student majoring in the Humanities must also meet the regular School, UCI, and University requirements for graduation. (See p. 20 and p. 116.) Inquiries by third-quarter sophomores should be addressed to Chair of the Humanities Major Committee, c/o the Associate Dean for Undergraduate Study.

Honors Concentration in Social Thought

The School of Humanities and the School of Social Sciences offer an honors concentration in Social Thought. The concentration offers undergraduates the opportunity to examine major social theories and their implications in a systematic and thorough way. In exploring intellectual foundations and contemporary development of modern social thought, students will develop their skills in critical analysis of society and theory.

The concentration identifies whole societies as its objects of knowledge. It has as its central focus alternative conceptions of society's structure, historical development, and future prospects as perceived and analyzed by political and social philosophers, historians, social scientists, and literary writers.

The concentration is taken in addition to a major in the School of Humanities or the School of Social Sciences. Thus, a student would major in, e.g., History and Social Thought or Political Science and Social Thought, etc. Students interested in this program should apply to a member of the faculty steering committee. A student is admitted to the program on the recommendation of the steering committee. Students are selected on the basis of aptitude for theory. A grade point average of at least 3.2 is required for admission, and in order to complete the honors program a grade point average of at least 3.5 must be attained in courses in the Social Thought concentration.

Two core courses, two courses in surveys of theory, and two courses in intensive studies of theorists will be required. Additional problem-centered courses will be recommended. Lists of courses in these categories and of the current membership of the steering committee may be obtained from the Social Sciences Advising Office or the Office of Undergraduate Study in the School of Humanities. A senior honors thesis is required.

UNDERGRADUATE COURSES

The following set of courses has no necessary relation to the undergraduate major in Humanities. The courses are, of course, open to any UCI student. Humanities 1A-B-C is required for the major in Humanities, as it is a requirement of any student majoring in the School of Humanities. Also, Humanities 199 is required of any undergraduate in the School who elects a major in Humanities.

Humanities 1A-B-C The Humanities Core Course (8-8-8) F, W, S

A sequence required of all Humanities majors and to be taken in the freshman year. From year to year different problems of mutual concern to the various humanistic disciplines are taken up, with emphasis placed on the careful reading of certain major texts that bear on these problems and on the development of the ability to think clearly and write well about the issues they raise. A writing program is an integral part of the course.

Humanities 75 Biblio Strategy (2) F, W, S

Development of search strategy techniques relevant for library research at UCI and other academic institutions, with emphasis on application of these techniques to individual research interests. Recommended, but not limited, to students with assigned papers for other classes.

Humanities 93 Careers for Humanities Students (1)

The course is designed to help students understand and evaluate careers available to them, and to explain occupational and educational trends so they can plan course work to meet career goals.

Humanities 101A-B-C Undergraduate Humanities Colloquia (4-4-4) F, W, S

Offered in various subjects of an interdisciplinary nature, generally for juniors or seniors. May be repeated when subject changes.

Humanities 197 (varying credit) F, W, S

Individually arranged field study.

Humanities 198 (varying credit) F, W, S

Directed group study on special topics.

Humanities 199 (varying credit) F, W, S

Directed research for senior majors in Humanities.

PH.D. WITH INTERDISCIPLINARY EMPHASIS IN HUMANITIES

The School of Humanities offers no degree called the Ph.D. in Humanities. Some Ph.D. students in regular programs in the School may elect an interdisciplinary modification of their degree with the permission of the departments or programs concerned. Such students will do about 60% of their graduate work in a major field and about 40% in one or more minor fields. At least one of the student's courses will be in the Humanities series 200-230. Those interested in an

interdisciplinary degree should contact the Associate Dean for Graduate Study or the Graduate Advisor in their major department.

GRADUATE COURSES

Graduate courses in Humanities are under the direction of the School's Associate Dean for Graduate Study.

These courses are designed for all graduate students in the School of Humanities, with the exception that students in philosophy may not count Humanities 230 as part of their degree program.

Humanities 200, 210, 220, and 230 introduce study in four disciplinary areas, either to students planning a degree in history or one of the literature departments or to those seeking familiarity with disciplines other than their own.

Humanities 200 The Nature and Theory of History (4) F

An introduction to various approaches to historical inquiry. The course deals with speculative and critical history, as well as analytical history. Same as History 200A.

Humanities 210 Approaches to Linguistic Study (4) S

A study of linguistic theories and methods of language description, linguistic structure, language change, typology of grammars, theories of meaning. For the student unfamiliar with the basic principles of linguistics.

Humanities 220 Literary Theory (4) F

An introduction to the role of criticism and aesthetics in literary study for beginning graduate students. Readings from continental, English, and American theorists.

Humanities 230 Philosophical Analysis (4)

An introduction to the fundamentals of philosophical analysis through the application of techniques to selected problems in the various "fields" of philosophy: ethics, philosophy of science, political philosophy, aesthetics, philosophy of religion.

Humanities 291 (4) F, W, S

Under this number the School offers a group of seminars and colloquia in interdisciplinary topics or in topics in a particular discipline that are designed for study by students in other disciplines.

Humanities 399 University Teaching (4-4-4) F, W, S

A course required of and limited to Teaching Assistants.

Program in Linguistics

Linguistics is concerned with descriptions of human languages, with theories that seek to explain the nature of language, and with the various uses of language. Addition-

ally linguistics has potential relationships with other disciplines concerned with language. Because of the various possibilities in emphasis and because linguistic studies are on the edge of territory as yet unexplored and therefore without precedent, the linguistic group in the School of Humanities has formulated programs which are highly flexible.

Students are encouraged to enroll in linguistic courses with varying perspectives and counsel with faculty across schools and departments. Students obtaining a B.A. in Linguistics are expected to have some awareness of linguistic work beyond their own specialization.

The requirements of the program are designed to provide guidelines sufficient to give direction; each student's program will be an individual development between the student and the discipline. Although the program is suggested for those students who are primarily interested in the emphasis of language in their linguistic studies, students who have innovative ideas for courses of study that would not follow this general plan may propose these plans to their advisors and petition for a change in the requirements. It is assumed that this would occur after finishing the core courses (Linguistics 50, 101, 102, 103). Students also may elect to major in one of the foreign languages with a linguistic emphasis. Consult program requirements in Classics, French, German, Russian, and Spanish.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: See page 116.

Program Requirements

1. Linguistics 50, 101, 102, 103.
2. Four additional upper-division courses in linguistics such as: the Topic courses, Linguistics 150; Psycholinguistics; Sociolinguistics; Mathematical Linguistics; Philosophy of Language; Formal Grammars; Semantics; Linguistics and Poetics; History of the English, French, German, Russian, or Spanish language; and others as offered from time to time which are linguistically oriented. The courses listed under "Additional Linguistics Courses" at the end of this section will satisfy this requirement.
3. (a) One year beyond 2C in a modern foreign language.
(b) One year of either a non-Indo-European language, Latin, Greek, or one year each of any two languages other than the above.

LINGUISTICS FACULTY

- Mary Ritchie Key, Ph.D. University of Texas, *Associate Professor of Linguistics and Director of the Program in Linguistics*
- Howard A. Appel, M.S. University of Washington, *Supervisor of Teacher Education – Foreign Languages and Lecturer in French*
- Richard Barrutia, Ph.D. University of Texas, *Professor of Spanish*
- Peter Colaclides, Ph.D. University of Athens, *Professor of Classics*
- Tracy D. Terrell, Ph.D. University of Texas, *Assistant Professor of Romance Linguistics*
- Owen P. Thomas, Ph.D. University of California, Los Angeles, *Professor of Linguistics and Education*
- Bernard Tranel, Ph.D. University of California, San Diego, *Assistant Professor of Linguistics*
- Wilfried M. Vogt, Ph.D. University of California, Berkeley, *Assistant Professor of German and Linguistics*

COURSES

- 50 Introduction to Linguistics (4) F, W, S**
Beginning course surveying the scope of linguistics. Linguistic analysis and language structures illustrated by languages from many areas of the world. (Linguistics 50 and Social Science 3 may not both be taken for credit.)
- 101 Phonetics, Phonology, and Morphology (4)**
Study of general phonetics with emphasis on articulatory phonetics, including practice in phonetic transcription. Phonological and morphological analysis of data from a wide variety of languages. Prerequisite: Linguistics 50 or equivalent.
- 102 Syntax and Semantics (4)**
Methods of analysis on utterances larger than the word. These include phrase types and clause types, as well as sentences. Recent developments and major problems in syntactic and semantic theories. Prerequisite: Linguistics 50 or equivalent.
- 103 Historical Linguistics (4)**
An introduction to the methods of historical analysis of language. The classification of languages and aspects of language change studied by internal reconstruction and the comparative method. Prerequisite: Linguistics 50 or equivalent.
- 115 Theories of Second Language Acquisition (4)**
An examination of theories dealing with the learning of foreign languages. The influence of these theories on past and current teaching methods. A comparison of first and second language acquisition. Prerequisite: Linguistics 50 or equivalent.
- 150 Studies in Linguistics**
Topic varies depending upon availability and interest of faculty.
- 151 Advanced Phonology and Morphology (4)**
Continuation of Linguistics 101. Aspects of phonological and

morphophonological theories illustrated by the analysis of linguistic data from a wide variety of languages. Prerequisites: Linguistics 50 and 101.

- 163 Advanced Syntax and Semantics (4)**
Analysis of various proposals for the treatment of semantics in an integrated linguistic theory. Prerequisite: Linguistics 50, 102, or equivalent.
- 170 Sociolinguistics (4)**
Sociolinguistic varieties of language examined from different points of view: geographical, temporal, and cultural. Prerequisite: Linguistics 50.
- 171 American Dialects (4)**
Studies in variability theory as applied to research in American dialects, especially phonological variation and sound change in progress. Prerequisite: Linguistics 50.
- 175 Paralanguage and Kinesics (4)**
Channels of nonverbal communication which correlate with speech. Extra-speech sounds and body movements.
- 190 Directed Reading (4)**
- 199 Individual Study (4)**
- 200 Studies in Linguistics (4)**
Topic varies.

ADDITIONAL LINGUISTICS COURSES

Classics

Full undergraduate offerings in Greek and Latin.

English

- English 181 The Structure of English (4)**
- English 184 History of English Language (4)**
- English 187 Selected Topics in English Linguistics (4)**
- English 200 Selected Topics in English Linguistics (4)**

French

- French 11 French Phonetics (4)**
- French 113 Introduction to French Linguistics (4)**
- French 131 Junior-Senior Seminar in Linguistics (4)**
- French 200 Selected Topics in French Linguistics (4)**
- French 201 History of the French Language (4)**
- French 202 Contrastive French Phonology (4)**
- French 203 Contrastive French Morphology and Syntax (4)**
- French 208 Stylistics (4)**

German

- German 100C German Phonetics (4)**
- German 220 Selected Topics in German Linguistics (4)**

Philosophy

Philosophy 135 Philosophy of Language (4)

Russian

Russian 200 Selected Topics in Russian Linguistics (4)

Social Sciences

Social Science 3 Introduction to Cognitive Linguistics (4)

Social Science 50A Acquisition of Language (4)

Social Science 141A Introduction to Syntax (4)

Social Science 141B Intermediate Syntax (4)

Social Science 141C Advanced Syntax (4)

Social Science 142A Introduction to Psycholinguistics (4)

Social Science 142D Project in Child Language (4)

Spanish

Spanish 11 Spanish Phonetics (4)

Spanish 187 Selected Topics in Spanish Linguistics (4)

Spanish 200 Contrastive Analysis (4)

Spanish 201 History of the Spanish Language (4)

Spanish 204 Recent Trends in Foreign Language Teaching (4)

Spanish 205 Spanish Dialectology (4)

Spanish 250A-B Romance Linguistics (4-4)

Department of Philosophy

Philosophy addresses itself to questions that arise insistently in every area of human experience and in every discipline within the university. Each discipline inevitably poses problems concerning the nature of the standards appropriate to it and the place of its subject matter within the total framework of human knowledge. If we are to understand science or art or literature, or such human practices as morality and religion, we are bound to address ourselves to philosophical issues relating to their nature, the uses of reason appropriate to them, and the contributions they make to our understanding and appreciation of ourselves and the world in which we live.

UNDERGRADUATE PROGRAM

Instruction in philosophy relies essentially upon discussion in which students are active participants. Wherever possible, therefore, classes are severely limited in size in order to permit sustained dialogues between student and instructor.

Some of the courses offered are of general interest to all students. Others are designed to explore issues that arise in selected and special disciplines. Among these are courses in the philosophy of science and of art. The staff should be consulted for advice about courses best suited to the specialized needs of particular students.

The program of course offerings is also designed for those majors in philosophy whose intention may be either to enter some professional school upon graduation (e.g., law) or to engage in graduate work in philosophy.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: See page 116.

Departmental Requirements

Philosophy 20A-B-C, 50. Two of the following: Philosophy 100A-B, 110A-B, 115A-B. Two additional quarter courses from Philosophy 101-199.

GRADUATE PROGRAM

Students are encouraged to seek the counsel of any and all members of the Department whose recommendations the student would deem helpful. It is hoped that there will be a close intellectual relationship between graduate students and professors in order to provide the students with optimum conditions for philosophical development and to expedite their progress toward advanced degrees. In addition, the Department sponsors a series of colloquia each year. Participation in these colloquia is an important part of the graduate student's training.

Master of Arts in Philosophy

There is no list of courses required for the M.A. degree. The M.A. program in Philosophy minimally takes one year. The student may elect to follow either of the following routes to the degree: write a thesis on a subject to be chosen in consultation with an advisor and defend the thesis in an oral examination, *or* satisfy the Logic and Portfolio requirements for the Ph.D. (see below). Please refer to the Graduate Division section for information on the minimum number of courses required for the M.A. degree.

Advancement to candidacy for the M.A. degree is not automatic, but requires formal application to the Dean of the Graduate Division via the Philosophy Department Office. Application must be made with the recommendation of the Philosophy Department and must take place before the

beginning of the quarter in which the student expects to receive the degree.

Doctor of Philosophy in Philosophy

There is no set number of courses required for the Ph.D., thus allowing course work to be tailored to the individual student's needs and interests. However, as a prerequisite for the Ph.D. degree, every student is required to have some experience in teaching.

The Ph.D. program is designed to take four years for the normally qualified student. In exceptional cases it may be possible to obtain the degree within three years. A Master's degree is not a prerequisite for the Ph.D. The requirements for the Ph.D. degree are as follows:

Tools of research, to be satisfied by demonstrating proficiency in a single appropriate foreign language* *or* by passing with a grade of B or better five to six courses at the graduate level in a discipline or disciplines outside of the Philosophy Department. Approval for the latter alternative will be granted by the Department only if, in its judgment, the courses form an integrated unit in light of the student's research interest.

Logic, to be satisfied by passing Philosophy 152 with a grade of B or better *or* by passing an examination on equivalent material upon petition. (The Department must grant the petition; it is required in order to allow the Department sufficient time to prepare the examination.)

Portfolio of papers representing the student's best work in philosophy. The papers may be, or may be based upon, essays written for course work. The topics of the papers will range over a number of fields in philosophy as well as over at least three of the following historical periods: Ancient, Medieval, Early Modern, Kant and Nineteenth Century, and Twentieth Century. Examples of fields in philosophy are metaphysics, epistemology, ethics, political philosophy, philosophy of religion, philosophy of science, aesthetics, and so on. Papers will be evaluated by the faculty for the purpose of determining whether or not the student is ready to seek admission to candidacy.

*The foreign language examinations are administered by the Department of Philosophy. They are two hours in length and consist of translating, with the aid of a dictionary, passages from two authors. Students wishing information as to courses to prepare them for these examinations and dates when these examinations will be given should consult the Philosophy Department Office, 500 Humanities Office Building, (714) 833-6526.

Advancement to candidacy and the writing of a thesis.

Upon successful completion of the above requirements, the student will apply for advancement to candidacy for the Ph.D. degree by filling out the appropriate forms and returning them to the Philosophy Department Office. A Candidacy Committee including one or two members from an academic area outside of Philosophy is then appointed by the Graduate Council. This Committee administers an oral examination to determine whether the student is qualified to begin work designed to lead to the completion of a thesis.

Upon passing this oral examination, the student becomes a candidate for the Ph.D. degree. The Doctoral Committee appointed by the Graduate Council supervises the student's further course work and research, as well as the actual writing of the doctoral thesis.

The defense of the thesis. At a suitable point during the development of the thesis, the Doctoral Committee administers an oral examination, the focus of which is the content of the thesis itself. If at all possible, this examination will be given while the student is still in residence.

PHILOSOPHY FACULTY

- Guy Sircello, Ph.D. Columbia University, *Professor of Philosophy, Chairman of the Department, and Associate Dean for Undergraduate Study, School of Humanities*
 B. Jill Buroker, Ph.D. University of Chicago, *Assistant Professor of Philosophy*
 Kit Fine, Ph.D. Warwick University, *Associate Professor of Philosophy*
 Richard Holzman, Ph.D. Johns Hopkins University, *Assistant Professor of Philosophy*
 Joseph F. Lambert, Ph.D. Michigan State University, *Professor of Philosophy*
 A.I. Melden, Ph.D. University of California, Berkeley, *Emeritus Professor of Philosophy*
 Nelson C. Pike, Ph.D. Harvard University, *Professor of Philosophy*
 Gerasimos Santas, Ph.D. Cornell University, *Professor of Philosophy*
 David W. Smith, Ph.D. Stanford University, *Associate Professor of Philosophy*
 William Ulrich, Ph.D. Cornell University, *Assistant Professor of Philosophy*
 Peter Woodruff, Ph.D. University of Pittsburgh, *Associate Professor of Philosophy*

UNDERGRADUATE COURSES

5 Problems of Philosophy (4) F, W, S

This course varies in content and structure from quarter to quarter. A central aim is to introduce students to certain basic philosophical problems and concepts, methods, and techniques, with an emphasis on both discussion and writing.

7 Introduction to Phenomenology and Existentialism (4) F

Introductory study of phenomenology and existentialism: their doctrines, their connections and disconnections, philosophical backgrounds, contributions to traditional disciplines, e.g., metaphysics, epistemology, ethics, and to other disciplines, e.g., psychology, social science, literature, religion.

15 Introduction to Ethics (4) F, W, S

Studies of selected writings from the history of ethics. Problems dealt with include the nature of the good life and the moral justification of conduct.

20A History of Ancient Philosophy (4) F

An examination of the central philosophical themes about man, society, and nature in the Pre-Socratics, Socrates, Plato, Aristotle, Stoics, Epicureans, and Skeptics.

20B History of Medieval Philosophy (4) W

The purpose of this course is to introduce the student to the more important thinkers of the Middle Ages (approximately 400-1400 A.D.) and their respective philosophical systems. Prerequisite: Philosophy 20A.

20C History of Modern Philosophy (4) S

A study of some major developments in Western Philosophy from Descartes to Kant. Attention is focused on Kant's theory of time and space and on Berkeley's phenomenalism. Readings from Descartes, Leibniz, Locke, Berkeley, Hume, and Kant. Prerequisite: Philosophy 20B.

50 Introduction to Logic: The Nature of Argument (4) F, W, S

The course is divided into three stages. In the first stage the nature and kind of arguments and their connection with inference are discussed. The second stage concentrates on identifying and extracting arguments both in everyday life situations and more technical contexts. The third stage introduces and applies examples of some simple procedures for evaluating arguments.

Unless otherwise specified, one course in philosophy is required as a prerequisite for each of the following courses. In special cases the requirement may be waived. Inquiries should be directed to the staff.

100A-B Metaphysics (4-4) F, W

A study of the nature of reality and existence, dealing with such problems as substance, free will, abstract objects, identity; 100A prerequisite for 100B. No credit given for 100A without completion of 100B.

110A-B Theory of Knowledge (4-4) F, W

An examination of the central problems of the theory of knowledge: the role of perception in the acquisition of knowledge, the

nature of evidence and the distinction between knowledge and belief, and the nature of truth and certainty; 110A is prerequisite for 110B. No credit given for 110A without completion of 110B.

115A-B Ethics (4-4) W, S

Selected topics from recent moral philosophy, such as the naturalistic fallacy, the distinction between "is" and "ought," rule and act utilitarianism; 115A is prerequisite for 115B. No credit given for 115A without completion of 115B.

117 Political Philosophy (4) W

An examination of some of the central problems in political philosophy. Some of the problems treated will be: the justification and limits of legitimate authority; the notion of an ideal state; and the meaning of political liberty and obligation.

121 Plato (4)

A discussion of the central subjects in Plato's Dialogues, including Socratic questions, Socratic ethics, Platonic ethics and social philosophy, Plato's theory of ideas, and his views on knowledge and perception, language and art. Lectures and student participation. Prerequisite: Philosophy 20A or consent of instructor.

122 Aristotle (4)

The basics of Aristotle's philosophy: his philosophy of language, logic, epistemology, philosophy of nature, metaphysics, ethics, and philosophy of art.

126 Continental Rationalism (4) F

A detailed review of representative works of the more outstanding continental rationalists: Descartes, Malebranche, Leibniz, and Spinoza. Prerequisite: Philosophy 20C or consent of instructor.

127 British Empiricism (4) F

An examination of the writings of Locke, Berkeley, and Hume with special attention to the problems of substance, perception, and knowledge. Prerequisite: Philosophy 20C or consent of instructor.

128 Kant (4) F

Typically a fairly close reading of the first half of the *Critique of Pure Reason*. Prerequisite: Philosophy 20C or consent of instructor.

130 Philosophy of Mind (4) F

An examination of such psychological concepts as motive, intention, desire, memory, intelligence, belief. Prerequisite: Philosophy 50 or consent of instructor.

132 Phenomenology (4)

Foundations of phenomenology in Husserl. Backgrounds in Blozano, Frege, Brentano, Meinong, Kant, Descartes. Topics include: phenomenological method, theory of intentionality, meaning, perception, evidence, ego, other persons, intersubjectivity, life-world. Readings primarily in works of Husserl.

133 Existentialism (4) F

Detailed study of Heidegger and Sartre, with their backgrounds in phenomenology. Prerequisite: Philosophy 132 or Philosophy 7.

150 Philosophy

135 Philosophy of Language (4) F

A critical exploration of selected topics in Philosophy of Language such as Reference and Speech Act theories and theories of meaning. Prerequisite: Philosophy 50 or consent of instructor.

143 The State and the Individual (4)

An examination of some of the standard issues in social and political theory. Included will be such questions as the concept of human nature, the relationship between the individual and the state and society, human freedom, and revolution. Readings will include Plato, Marx, Mill, and others.

150 Intermediate Logic I (4) F

An intensive introduction to methods of proof in formal logic, covering the standard propositional and quantificational calculi, the theory of identity, and theory of descriptions.

151 Intermediate Logic II (4) W

A study of the proof theory and model theory for propositional logic. Prerequisite: Philosophy 150.

152 Intermediate Logic III (4) S

A study of the proof theory and model theory for the logic of quantifiers with identity. Prerequisite: Philosophy 151.

155 Philosophy of Logic (4) S

An examination of fundamental questions raised by contemporary formal logic. Topics include the existence and nature of propositions, theory of entailment, descriptions and existential presuppositions. Prerequisite: consent of instructor.

160 Introduction to Philosophy of Science (4)

Systematic examination of leading problems in the philosophy of science; for example, the nature of mathematics, explanation, confirmation, and the limits of scientific explanation.

164 Christian Mysticism (4)

A study of classical Christian mysticism with special emphasis on the phenomenological features of mystical experience. Readings from St. Bernard of Clairvaux, St. Teresa of Avila, St. John of the Cross, Julian of Norwich, and others. Some attention will be paid to the relations between Western and Eastern mysticism and to the question of whether mystical experience can be produced with the use of psychedelic drugs.

165 Philosophy of Religion (4) S

A philosophical inquiry into the nature and existence of God. Attention is focused on the literature of Western mysticism and Judeo-Christian theology. Topics include the phenomenology of religious experience, the attributes of God, and the traditional arguments for and against the existence of a Divine Being. Readings include the works of Rudolf Otto, St. Anselm, St. Thomas, David Hume, William Paley.

170 Introduction to Aesthetics (4)

A systematic presentation and defense of the New Theory of Beauty.

171 Theory of Art (4)

Interpretation and evaluation of one or more metaphysical

theories of art by traditional philosophers, e.g., Plato, Aristotle, Kant, Hegel, Schopenhauer, Dewey, or Heidegger.

180 Contemporary Philosophy (4) W, S

A selected topic (such as the theory of perception) will be discussed from the analytic point of view, with consideration of the views of contemporary philosophers on the subject. May be repeated for credit.

190 Topics in Current Research (4)

198 Senior Proseminar (4)

199 Directed Special Studies (4)

GRADUATE COURSES

Since seminar and graduate course topics vary with the occasions on which they are offered, they may be repeated for credit. Open to graduate students and upper-division undergraduates by consent of instructor.

In addition to the following courses, graduate students in Philosophy might find these Humanities courses of special interest: Humanities 200 (The Nature and Theory of History), Humanities 210 (Approaches to Linguistic Study), and Humanities 220 (Literary Theory).

200 Seminar in Metaphysics (4)

210 Seminar in Theory of Knowledge (4)

215 Seminar in Ethics (4)

217 Seminar in Political Philosophy (4)

220 Seminar in History of Philosophy (4)

221 Seminar in Philosophy of Plato (4)

222 Seminar in Philosophy of Aristotle (4)

228 Seminar in Philosophy of Kant (4)

230 Seminar in Philosophy of Mind (4)

232 Seminar in Phenomenology (4)

235 Seminar in Philosophy of Language (4)

250 Seminar in Logic (4)

252 Seminar in Set Theory (4)

255 Seminar in Philosophy of Logic (4)

260 Seminar in Philosophy of Science (4)

265 Seminar in Philosophy of Religion (4)

270 Seminar Topics in Aesthetics (4)

280 Seminar in Contemporary Philosophy (4)

299 Directed Research (4-4-4) F, W, S

399 University Teaching (4-4-4) F, W, S

A course required of and limited to Teaching Assistants.

Program in Russian

Russian is a language spoken by 240 million people in the Soviet Union and ranks with English and Chinese as one of the three major world languages. Russian is a language of the Indo-European family and is thus related to English, French, and German. Russian is an infinitely rich language, as is English, and adapts itself well to a variety of styles and genres from lyric love poetry to the seeming harshness and brashness of the futurist poets.

For the first two years the Program in Russian emphasizes a combination of speaking, writing, and reading skills. At the end of the senior year, the student can expect to have attained a rather high level of proficiency in all language skills — reading, writing, speaking, and understanding. By then students will have read a number of selected literary texts — including a fair portion of the significant masterworks — in the original. They will also have familiarized themselves with some of the historical background of the language and with its relation to other Slavic and European languages. And they will have achieved a reasonable degree of familiarity with the major cultural and social trends in Russian history.

In addition to the regular Russian major with emphasis on language and literature, the Program in Russian offers a modified major with emphasis on linguistics. This major was designed for those students who have no plans to pursue advanced study in Russian literature, while they wish to focus on the study of the structure of Russian viewed within the framework of Slavic and general linguistics.

The Program in Russian also offers a major with an emphasis in Russian civilization, which is geared to the interests of students who do not intend to specialize in Russian language and literature. This emphasis is based upon a multidisciplinary approach (through language, the arts, literature, history, study of institutions) to the rich variety of a culture that both before the Revolution and during the Soviet period has made an important contribution to mankind's heritage and endeavors. Various specializations and challenging new career possibilities in today's world are available to students electing this option.

Students planning to major in Russian should obtain a copy

of the brochure "Russian Language, Literature, and Civilization at UCI" from the Office of the Program in Russian.

Students entering UCI with previous training in Russian will be given advanced standing as follows: In general, one year of high school work is equated with one quarter of UCI work. Thus, students with one, two, three, and four years of high school Russian will enroll in Russian 1B, 1C, 2A, and 2B respectively. Exceptions to this ruling can be made but must have the approval of the Program Director. Students with high school training in Russian should consult with the Russian staff before enrolling in Russian courses.

UCI Summer Russian Institute and Practicum

In planning their programs of study, students should note that certain courses bearing the designation *Summer* are also offered within the three-week UCI Russian Institute and Practicum. The UCI Russian Language Institute is a three-week, total-immersion program in Russian language and culture for students of all levels, conducted entirely in Russian and encompassing all of the student's daily activities. The Practicum adjunct of the Institute affords prospective and practicing language teachers an opportunity for intensive language review and participation in established and experimental teaching methods. Applications for registration for the UCI Russian Institute and Practicum may be obtained from the UCI Office of Summer Sessions, 148K Administration Building, University of California, Irvine; Irvine, California 92717. Inquiries regarding the Institute may be directed to Director of the UCI Russian Institute and Practicum, Program in Russian, UCI.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: See page 116.

Departmental Requirements

Russian major with emphasis on Literature: Russian 1A-B-C (or 10A-B-C); 2A-B-C (or 11A-B-C); 100A-B-C; 101A-B-C; 110A-B-C; 150A-B-C; any two of the following: 120; 130 (formerly 155); 140.

Russian major with emphasis on Linguistics: Russian 1A-B-C (or 10A-B-C); 2A-B-C (or 11A-B-C); 100A-B-C; 101A-B-C; two courses from 110A-B-C; two courses from 150A-B-C; Linguistics 50; 101; 102; 103.

Russian major with emphasis on Civilization: Russian 1A-B-C (or 10A-B-C); 2A-B-C (or 11A-B-C); 100A-B-C;

120; 150A-B; two of the following: 130; 140; 150C; two of the following: History 132A-B-C-D; Social Sciences 122A.

Planning a Program of Study

The Program in Russian believes in close consultation with students on academic advising, program planning, and discussion of goals and direction. Students planning to major in Russian with an emphasis in literature or in linguistics are strongly urged to consult with the departmental faculty as early as possible, in order to familiarize themselves with the nature of the various programs.

After indicating an intention to major in Russian, the student is assigned to an academic advisor who will help in the task of selecting courses towards the completion of one of the three options open to students majoring in Russian studies at UCI. Special attention is paid to the unique aspects of the Russian field. In particular, students' attention is alerted to the combined academic and career implications and potentialities of these major options.

Career Opportunities

The major in Russian may lead to the following careers: in education (in high school teaching, or, after appropriate graduate study, on the college and university levels); with the Federal Government (where there are a number of openings in such agencies as the Department of State, Department of Defense, Department of Health, Education and Welfare, the U.S. Information Office, and the Library of Congress for translators and other positions requiring the knowledge of Russian); a career as interpreter or translator with private institutions; various careers in science and technology; library science; communications media (thus, the United States Information Agency's Voice of America offers many opportunities for Russian speakers: research, scriptwriting, editing, translating, and announcing); careers in private business corporations paying increased attention to the developing rhythm of contacts with the Soviet Union.

However, it is not the essential purpose of a major program in Russian language, literature, and civilization to provide specific vocational skills. The study of Russian language, literature, and civilization is primarily viewed as a valuable component of a liberal education; a knowledge of Russian literature, history, philosophy, and science provides an extremely important instrument for the investigation and appreciation of the modern world.

RUSSIAN FACULTY

Helen Weil, M.A. California State University, San Diego,
Lecturer in Russian and Director, Program in Russian
Guy de Mallac-Sauzier, Ph.D. Cornell University, *Associate Professor of Russian*
Michael A. Green, Ph.D. University of California, Los Angeles, *Assistant Professor of Russian*

LOWER-DIVISION COURSES

1A-B-C Fundamentals of the Russian Language (5-5-5) F, W, S, Summer

The course focuses on reading, comprehension, basic composition, and conversation skills, and gives the student an initial exposure to the Russian cultural scene.

2A-B-C Second-year Language Study (4-4-4) F, W, S, Summer

The student can expect to read simple passages from contemporary Russian literary texts and newspapers. Development of oral skills and exposure to Russian culture continue.

10A-B-C Fundamentals of Russian (5-5-5) F, W, S

A self-paced program designed to accommodate students who cannot attend the regular class meetings of 1A-B-C due to schedule conflicts or who desire to progress toward language competence at their individual pace.

11A-B-C Second-year Language Study (4-4-4) F, W, S

A self-paced program covering the material of 2A-B-C designed to accommodate students who cannot attend the regular class meetings of 2A-B-C due to schedule conflicts or who desire to progress toward language competence at their individual pace.

12 Scientific and Technical Russian (4) S

Exposes the students to the typical terminology and idiomatic constructions common to natural and social sciences, economics, computer science, technology, and commercial correspondence. Representative selections from major scientific publications and technical manuals examined and analyzed. Students trained in the skills of interpreting and translating typical samples of scientific, commercial, and technical prose, and receive individual guidance and training. Not offered 1978.

UPPER-DIVISION COURSES

NOTE: The undergraduate curriculum was changed, effective winter, 1977. Courses formerly numbered 151A-B (Studies in Russian Literature) have been replaced by 110A-B; courses formerly numbered 160A-B (Russian Poetry) have been consolidated into 110C; 155 (Russian Stage and Film Drama) has been renumbered 130; and the course formerly numbered 130 (Soviet Institutions and Ideology) has been eliminated. Courses formerly numbered 180 (Major Literary Figure of the Nineteenth Century) and 181 (Major Literary Figure of the Twentieth Century) have

been consolidated into 150C (Major Literary Figure). The course formerly numbered 150C (Studies in Russian Literature) has been renumbered 150D.

Former Course Number	New Course Number
130	No equivalent
150C	150D
151A	110A
151B	110B
155	130
160A-B	110C
180/181	150C

Thus, the 110A-B sequence constitutes the study of Russian prose and poetry in Russian, the 150A-B-C-D sequence constitutes the study of Russian literature in translation, and the 120-130-140 series represents studies in Russian civilization.

100A-B Third-year Language Study (4-4) F, W, Summer

A continuation of the second-year program, with emphasis on grammar review, the development of oral and written composition skills, and reading comprehension.

100C Phonetics and Review Grammar (4) S, Summer

Contrastive analysis of the sounds and intonation of Russian. The grammar will concentrate on some of the more difficult points. Linguistics 50 is strongly recommended as preparation.

101A-B Fourth-year Language Study (4-4) F, W, Summer

The study of literary and expository texts, with emphasis on syntactic and stylistic analysis. Lectures and discussion are conducted increasingly in Russian.

101C The History and Development of the Russian Literary Language (4) S

A brief philological introduction, eleventh-twentieth century readings. Modern style will be analyzed from the viewpoint of previous changes in the language.

110A Russian Prose of the Nineteenth Century (4) F

The first course in a two-quarter sequence covering representative examples of Russian fiction. Class discussion conducted largely in Russian.

110B Russian Prose of the Twentieth Century (4) W
In Russian.

110C Russian Poetry: Pushkin to the Present (4) S

Representative Russian poets from the "Golden Age" through Symbolism to the present day will be read in the original, analyzed, and discussed. Reading and discussion in Russian.

120 Russian Civilization (4) W

Devoted to the definition of Russian culture from the medieval to the modern period, with attention to historical, literary, political, and philosophical interpretations. Based on a multidisciplinary approach.

ical, and philosophical interpretations. Based on a multidisciplinary approach.

130 Russian Stage and Film Drama (in Translation) (4)

The course will trace the development of the Russian theatre through the Symbolist drama to Futurism and the post-Revolutionary era. Attention will be paid to the innovation of twentieth-century stage directors, and masterpieces of the Soviet cinema will be viewed and discussed. Open to freshmen. Lectures, readings, and discussions in English.

140 Russian Intellectual Thought (in English) (4) S

A discussion of major exponents of Russian thought, religious and rationalist. The focus is on the polarity between religious-philosophical trends and radical systems and ideologies (e.g., anarchism, nihilism). Lectures, readings, and discussions in English. Not offered 1978.

150A Russian Literature of the Nineteenth Century (4) F

Reading of selected prose masterpieces, investigating the dilemma of the Russian writer, caught between the demands of art and the function Russian society expected the writer to fulfill. Lectures, readings, and discussions in English.

150B Russian Literature of the Twentieth Century (4) W

An investigation of twentieth-century Russian and Soviet literature, focusing upon the activity of the radical literary intelligentsia, and the role of the writer in a revolutionary society. Lectures, readings, and discussions in English. Open to freshmen.

150C Major Russian Literary Figure (4) S

The study of a major Russian literary figure of the nineteenth or twentieth century. Topic varies. Lectures, reading, and discussion in English.

150D Russian Literature (in Translation) (4)

An exploration of a specific period or problem in Russian literature. Lectures, readings, and discussion in English. Topic varies. Not offered 1977-78.

151C Russian and Soviet Prose 1910-present (in Russian) (4) S

199 Special Studies in Russian (4)

By consent. May be repeated.

200 Selected Topics in Russian Linguistics (4)

Not offered 1977-78.

220 Studies in Russian Literature (4)

290 Reading and Conference (4)

291 Guided Reading Course (4)

398 Teaching Russian (4) Summer

An examination of the problems and challenges involved in introducing Russian to students. The course includes practice in lecturing and discussion as well as experimentation with teaching techniques.

399 University Teaching (4-4-4) F, W, S

A course required of and limited to Teaching Assistants.

Department of Spanish and Portuguese

The main objectives of the program in Spanish and Portuguese are: to develop competence in the ability to understand, speak, read, and write Spanish and Portuguese; to provide through the knowledge of these two languages an understanding and appreciation of their literature and culture.

Students are placed in Spanish courses according to their years of previous study and their grades. In general, one year of high school work is equated with one quarter of UCI work.

All courses in Spanish and Portuguese, unless specifically stated, are taught in the foreign language. First-year courses meet in the classroom four times a week and in the Language Laboratory twice a week. By the end of the first year, students attain mastery of the basic structure of the language and ability to converse on everyday topics as well as to read and write on an elementary plane. Self-instructional courses in both Spanish and Portuguese are also available.

In the second year, emphasis is put on gradually raising the level of the student's ability to read and write. A third-year course of two quarters stresses composition as opposed to translation. Further, a course in phonetics perfects pronunciation, introduces theoretical considerations, and presents historical and dialect variants of Spanish. The introductory courses in literature, also in the third year, emphasize the analysis and appreciation of complete literary works by genre rather than the study of many short selections of innumerable authors in an anthology. The courses in Hispanic civilization combine a panoramic overview with a close look at a specific country or topic.

Although no major in Portuguese is offered, advanced literature courses are available.

Students are encouraged to participate in programs of study abroad during the summer and the junior year.

Elected representatives of the undergraduate majors, the graduate students, and the Teaching Assistants participate with full voting rights in Department meetings.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: See page 116.

Departmental Requirements

Spanish 10A-B, 11, 101A-B-C-D; 110A, B, or C; Linguistics 50. In addition, each student chooses one of the following four emphases:

Literature: Four upper-division courses in literature with a minimum of one in Spanish-American Literature and one in Spanish Literature.

Linguistics: Linguistics 101, 102, 103; and any upper-division Spanish linguistics course.

Culture: Two courses in Latin-American Literature; Spanish 110A-B-C.

Bilingualism and English as a Second Language: One course in Chicano Literature (Spanish 133); two courses in Chicano Culture; a course in Methods of Teaching Bilingualism, either Spanish 100A (multiple subject) or Spanish 100B (single subject), and a course in teaching ESL (Education 140, same as Spanish 100C).

Master of Arts in Spanish

The candidate is expected to have the equivalent of our undergraduate major. The student takes a minimum of eleven courses, eight of which must be graduate courses. Two of the eleven courses must be in linguistics. A maximum of two courses may be transferred from another university, but a maximum of five from another University of California campus. Proficiency (defined as the equivalent of the level attained at the end of course 2C) in a foreign language other than the major language is required. The comprehensive examination, in part written, in part oral, will be based both on a reading list and the courses taken by the students and will also test the students' ability to express themselves correctly in Spanish. No thesis is required. The student may choose an emphasis in literature or linguistics.

M.A.T. in Spanish

This program is specifically directed at meeting the needs of working credentialed teachers, although others may apply. It seeks to provide a group of modern, relevant courses that will enable teachers to keep abreast of recent developments in their field. It is structured so that working teachers can take courses in late afternoons, evenings, and sum-

mers, and may be completed in one academic year and two summer sessions. Applicants should have a B.A. in Spanish and should acquire proficiency in a foreign language other than Spanish. The program consists of ten courses (eight of which must be graduate courses) as follows: three courses in Hispanic literature; three courses in Hispanic civilization and literature; three courses in Hispanic linguistics; and one course in Recent Trends in Foreign Language Teaching, to be combined with a curricular research project in the form of a thesis.

Bilingual/Cross-Cultural Specialist Credential

This is a teaching credential for both high school (single subject) or elementary school (multiple subject). Undergraduates may plan from the beginning to aim for this specialist credential by preparing themselves with a proficiency in the Spanish language. See page 245.

Ph.D. in Spanish

The Department of Spanish and Portuguese offers a Ph.D. degree with a major in either Spanish or Spanish-American literature. The program attempts to integrate period and genre studies with work in literary theory, linguistics, and socio-historical studies. A number of courses outside of the Department are required. We thereby hope to aid in the formation of Ph.D. candidates who are not narrow specialists but scholars acquainted with the various fields that relate to their discipline. We are concerned also with the practical aspects of helping our graduates become good teachers.

The minor field can be Spanish literature, Spanish-American literature, or Spanish linguistics.

Language Requirements

A reading knowledge of Portuguese and two other languages relevant to the student's area of specialization and subject to the approval of the Department.

Course Requirements

A minimum of 23 courses for the Ph.D. as follows:

Two graduate courses in linguistics, diachronic and synchronic (the students who select linguistics as a minor will substitute two courses in either Spanish or Spanish-American literature); a course in Literary Theory (genre studies, etc.); a course in Methods of Literary Criticism; a course on the socio-historical context of the period of the student's specialization; a course in Brazilian or Portuguese literature (preferably related to the student's specialization); three

courses outside of the Department in non-Iberic literatures (preferably related to the student's major with regard to period and genre), or if the minor is Spanish linguistics, three courses in general linguistics and/or non-Iberic literatures; 14 courses in Hispanic literature, with a minimum of four in the minor area, the rest chosen by the student in accord with the major. (Students with a minor in linguistics will take 12 courses in Hispanic literature, with a minimum of two in the field [Spanish or Spanish-American] not chosen as a major. Ph.D. candidates should take one course in each genre within their area.)

Candidates who have the M.A. degree from another university will be interviewed by two professors representing peninsular and Spanish-American literature, in order to evaluate their past studies in terms of our doctoral program; it is recommended that the student's graduate advisor should be the person likely to direct the doctoral dissertation and that the choice of dissertation and director be made as early as possible; each Ph.D. candidate will act as an assistant to a professor in an upper-division course in the area of specialization, attending the class regularly and participating in the teaching (it will count as one of the required graduate courses).

Teaching

Since the overwhelming majority of Ph.D. candidates plan to teach, this Department recognizes its responsibility to train them as teachers. Therefore, all candidates for the Ph.D. without previous teaching experience are required to teach one course under supervision in each of three quarters.

Comprehensive Examination

Students are admitted to candidacy if they pass an oral examination administered by a Candidacy Committee appointed by the Graduate Council. The Candidacy Committee is composed of five members, of whom four will be from the Department. The oral examination will be preceded by a written examination as follows:

The examination will consist of four parts according to the area of specialization (Spanish literature or Spanish-American literature).

Spanish Literature Major: a historical literary period, including all of the genres and the socio-historical context; a genre in all the periods, and the student will demonstrate knowledge of literary theory and methods of literary criticism; the other genres and chronological periods.

Minor Area: Spanish-American literature (all genres of the period which corresponds to the major period) or Spanish linguistics.

Spanish-American Literature Major: a literary genre in all the periods, and the student will demonstrate a knowledge of literary theory and methods of literary criticism; a historical literary period, including all of the genres and the socio-historical context; the rest of the genres and periods.

Minor Area: a period of Spanish literature (all genres) or Spanish linguistics. Note: Students whose major area is medieval literature will choose as their minor area a period of Spanish-American literature or linguistics.

Dissertation

A dissertation topic will be chosen by the candidate which will normally, but not necessarily, fall within one of the major fields covered by the qualifying examination.

Three faculty members appointed by the Graduate Council constitute the Doctoral Committee which supervises the preparation and completion of the doctoral thesis. The Doctoral Committee supervises a final examination, the focus of which is the content of the doctoral thesis.

Ordinarily, this examination will not be given after completion of the thesis, but rather at an appropriate point during its development.

Such final examination will normally be given while the graduate student is in residence. The Doctoral Committee certifies that a completed thesis is satisfactory through the signatures of the individual Committee members on the title page of the accepted thesis.

SPANISH AND PORTUGUESE FACULTY

Richard Barrutia, Ph.D. University of Texas, *Professor of Spanish and Linguistics and Chairman of the Department*

Lucía Guerra-Cunningham, Ph.D. University of Kansas, *Assistant Professor of Spanish*

Walter P. Holzinger, Ph.D. University of Toronto, *Assistant Professor of Spanish*

Seymour Menton, Ph.D. New York University, *Professor of Spanish and Portuguese*

Alejandro Morales, Ph.D. Rutgers University, *Assistant Professor of Spanish*

Dayle Seidenspinner de Núñez, Ph.D. Stanford University, *Assistant Professor of Spanish*

Héctor Orjuela, Ph.D. University of Kansas, *Professor of Spanish*

Julian Palley, Ph.D. University of New Mexico, *Professor of Spanish*

María H. Sobek, Ph.D. University of California, Los Angeles, *Lecturer in Spanish*

Zidia Webb, M.A. Michigan State University, *Lecturer in Spanish and Portuguese*

Tracy Terrell, Ph.D. University of Texas, *Assistant Professor of Spanish*

Juan Villegas, Ph.D. Universidad de Chile, *Professor of Spanish*

COURSES IN PORTUGUESE

K1A-B-C Fundamentals (4-4-4) F, W, S

A semi-independent study of Brazilian Portuguese with emphasis on conversation. The students prepare the lessons independently by listening to tapes at home and/or in the Language Laboratory and come to class for conversation and grammar drills.

1A-B-C Fundamentals of Portuguese (4-4-4) F, W, S

Basic grammar, composition, and conversation with an initial exposure to Brazilian culture.

140A-B-C Brazilian Prose Fiction (4-4-4)

A selected study of Brazilian novels from the classical style of Machado de Assis to the regionalist novels of Lins do Rego, G. Ramos, R. de Queiroz, J. Amado. Prerequisite: Portuguese 1C or equivalent.

141 Brazilian Civilization (4)

A study of the history and culture of Brazil through sociological and literary works by contemporary authors. Prerequisite: Portuguese 1C or equivalent.

142 Brazilian Short Story (4)

Short stories by modern authors written in various levels of language. Prerequisite: Portuguese 1C or equivalent.

143 Brazilian Poetry (4)

A selection of Brazilian poets from the romantic period with emphasis on the poets associated with the Modernist Movement of 1922 and the following poetic movements. Prerequisite: Portuguese 1C or equivalent.

144 Masterpieces of Portuguese Literature (4)

A selection of the masters of the Portuguese literature. Prerequisite: Portuguese 1C or equivalent.

145 Brazilian Theatre (4) F

Readings of Brazilian contemporary plays. Emphasis on the language and customs of the various cultural regions of Brazil. Prerequisite: Portuguese 1C or equivalent.

150 Modern Brazilian Novel in Translation (4)

A study of the Brazilian novel from the nineteenth century through the Modernist Movement of 1922 to the contemporary regionalist novels of the Northeast and South of Brazil.

LOWER-DIVISION COURSES IN SPANISH

- 1A-B-C Fundamentals of Spanish (5-5-5) 1A (F), 1B (F, W), 1C (W, S)**
Prerequisites: 1A, no previous work in Spanish; 1B, one or two years of high school Spanish; 1C, two or three years of high school Spanish.
- 2A-B-C Spanish Reading and Composition (4-4-4) 2A (F, W), 2B (F, W, S), 2C (F, W, S)**
Prerequisite: normally three years of high school Spanish or one year of college Spanish.
- 10A-B Advanced Composition (4-4) 10A (F, W) 10B (W, S)**
Writing compositions on a variety of themes, motivated and prepared in the classroom, and arranged in order of difficulty. Review of selected grammatical topics. Prerequisite: completion of Spanish 2C or equivalent.
- 11 Spanish Phonetics (4) F, W, S**
Practical work comparing English and Spanish phonetics. Introduction to Spanish dialectology. Prerequisite: Spanish 2C or equivalent.
- 13 Intermediate Conversation (2) F, W, S**
Prerequisites: Spanish 10B and 11 or equivalent. Limited to ten students.

UPPER-DIVISION COURSES IN SPANISH

The prerequisite for all upper-division literature courses is Spanish 101A-B-C-D or equivalent.

- 100A Bilingual/Cross-Cultural – Multiple Subject (4) F**
Methods and materials for elementary bilingual classrooms; selection and use of children's literature, games, songs, and folklore; cross-cultural techniques in subject matter presentation; field experience required. Taught bilingually. Same as Education 140A.
- 100B Bilingual/Cross-Cultural – Single Subject – Language Arts (4) W**
Concerns oral and written interferences between Spanish and English; practice in various methods of presentation, e.g., the cognitive, audio-lingual, and traditional approaches. Field experience required. Taught bilingually. Same as Education 140B.
- 100C ESL for Teachers of Spanish-Speakers (4) S**
Methods and materials for the teaching of English to speakers of Spanish. Contrastive analysis – Spanish interference in English pronunciation and grammar. Techniques for teaching English to different age groups from varied backgrounds; field experience required. Same as Education 140C.
- 101A-B-C Introduction to Spanish Poetry, Theatre, Prose Fiction (4-4-4) F, W, S**
Prerequisite: Spanish 2C or equivalent.
- 101D Masterpieces of Latin American Literature (4) W, S**

- 110A-B-C Hispanic Civilization (4-4-4) F, W, S**
Each quarter will focus on a different country or topic. The content will vary from year to year. May be repeated. Prerequisite: Spanish 10B or equivalent.
- 115 Masterpieces of Spanish Medieval Literature (4)**
- 117A-B-C Golden Age Literature (4-4-4)**
- 119A-B-C Nineteenth-Century Spanish Literature (4-4-4) 119A (F)**
- 120A-B-C Twentieth-Century Spanish Literature (4-4-4) 120B (W) 120C (S)**
- 130A-B-C Spanish-American Prose Fiction (4-4-4) F, W, S**
- 131A-B-C Spanish-American Poetry, Theatre Essay (4-4-4) F, W, S**
- 133 Chicano Literature (4) W**
- 150 Spanish-American Literature in Translation (4) F, W, S**
- 185 Selected Topics in Spanish Literature (4)**
- 186 Selected Topics in Latin American Literature (4) F, S**
- 187 Selected Topics in Spanish Linguistics (4)**
- 190 Reading and Conference (4-4-4) F, W, S**

GRADUATE COURSES IN SPANISH

In addition to the following courses, graduate students might find these Humanities courses of special interest: Humanities 200 (Historical Theory and Analysis), Humanities 210 (Topics and Methods in Linguistics), Humanities 220 (Literary Theory), and Humanities 230 (Philosophical Analysis).

- 200 Contrastive Analysis (4)**
- 201 History of the Spanish Language (4)**
- 204 Recent Trends in Foreign Language Teaching (4) F**
- 205 Spanish Dialectology (4) F**
- 210A-B-C Medieval Literature (4-4-4)**
- 215A-B-C Golden Age Prose Fiction (4-4-4) 215B (W)**
- 216A-B Golden Age Lyric Poetry (4-4)**
- 217A-B Golden Age Theatre (4-4)**
- 219A-B-C Nineteenth-Century Spanish Literature (4-4-4)**
- 220A-B Modern Spanish Novel (4-4)**
- 221A-B Modern Spanish Poetry (4-4)**
- 222A-B Modern Spanish Theatre (4-4) 222A (W)**
- 232A-B-C Spanish-American Short Story (4-4-4) F, W, S**
- 233A-B-C Twentieth-Century Spanish-American Prose Fiction (4-4-4) F, W, S**
- 234A-B-C Spanish-American Poetry (4-4-4) 234A (F)**
- 235A-B Latin-American Essay (4-4) 235B (S)**

236 Selected Topics in Hispanic Civilization (4)

May be repeated for credit.

237 Selected Topics in Chicano Literature (4) S

238A-B-C Studies in Spanish-American Literature (4-4-4) F, W, S

239 Methods of Literary Criticism (4)

240A-B-C Literary Criticism, Theory of a Genre (4-4-4) F, W, S

250A-B Romance Linguistics (4-4)

260 Seminar in Spanish (4) S

Topic variable.

290 Reading and Conference (4-4-4) F, W, S

291 Directed Reading (4-4-4) F, W, S

299 Dissertation Research (4-4-4) F, W, S

399 University Teaching (4-4-4) F, W, S

A course required of and limited to Teaching Assistants.



School of Physical Sciences

Everly B. Fleischer Dean

The School of Physical Sciences offers both professional training and general education in the Departments of Chemistry, Mathematics, and Physics. The faculty, active in research and graduate education, are at the same time vitally concerned with undergraduate teaching. Curricula of the School are designed to meet the needs of a wide variety of students ranging from those with little technical background who seek insight into the activities and accomplishments of physical scientists to those seeking a comprehensive understanding that will prepare them for creative research in physical science.

Over the course of the past century and a half, physics, chemistry, and mathematics have evolved into interdependent but separate intellectual disciplines. This development is reflected in the departmental structure of the School of Physical Sciences. In the same period, these fundamental disciplines have moved into domains of abstraction unimaginable by early scientists. This trend to abstraction with its concomitant increase in understanding of the physical universe provides the major challenge to the student of the physical sciences. Mathematics, physics, and chemistry, while providing the foundation of the technology that dominates contemporary civilization, underlie to an ever-increasing extent the new developments in the biological and social sciences.

In recognition of the contribution students can make to the academic affairs of the School, a variety of responsibilities on School and departmental committees are given to undergraduate and graduate students.

Degrees

Chemistry	B.A., M.A., Ph.D.
Mathematics	B.A., M.A., Ph.D.
Physics	B.A., M.A., Ph.D.

Honors

Criteria used by the School of Physical Sciences in selecting candidates for honors at graduation are as follows: Approximately 1% will be awarded *summa cum laude*, 3% *magna cum laude*, and 8% *cum laude*. Honors are awarded on the basis of a student's performance in research and cumulative grade point average. The School of Physical Sciences also grants special honors to students who have distinguished themselves by their work in their major subject.

UNDERGRADUATE PROGRAMS

Each department offers courses that are of value to nonmajors and majors in the sciences. The programs for majors are designed to meet the needs of students planning careers in business and industry and of students planning graduate work that continues their major interest. In the belief that understanding and satisfaction follow more from depth than from breadth, the School offers no general survey course. However, each department offers a selection of general education courses having few or no prerequisites. See the departmental listings for descriptions of these courses, e.g., Chemistry 20-22, Mathematics 15, and Physics 10-20.

Planning a Program of Study

Every undergraduate student who has chosen to major in Physical Sciences is assigned a faculty advisor. The identity

of this advisor is communicated to the student prior to enrollment or may be obtained from the Office of the Dean or of the appropriate Department Chair. Students are free to change academic advisors at any time. Each department also has a Chief Academic Advisor who is responsible for interpreting degree requirements and dealing with special advising problems. An academic advising and counseling staff is also employed in the Dean's Office and is available to serve a broad range of student advising needs. In consultation with the advisor the student should plan a course of study leading to a major in one of the departments of the School. In carrying out this major, the student may often concentrate very heavily in a second department within the School or in some other School. Occasionally students choose to pursue a double major. Permission to do so may be sought by a petition submitted to the Office of the Dean of Physical Sciences.

All initial courses of study for majors include mathematics through calculus, and calculus is a prerequisite for much of the upper-division work in each major. A student interested in any of the physical sciences should continue mathematical training beyond these prerequisite courses. Furthermore, students interested in either physics or chemistry will usually include work in both of these subjects in their undergraduate careers.

Students in the School of Physical Sciences may satisfy the UCI breadth requirement by completing the appropriate courses in three schools outside of the School of Physical Sciences, i.e., Schools of Biological Sciences, Fine Arts, Humanities, or Social Sciences. Work completed in Comparative Culture and Social Ecology can apply toward satisfying portions of the breadth requirement only upon approval by the Dean of the School of Physical Sciences. Courses in Engineering and Information and Computer Science may not be used to satisfy the breadth requirement.

Students in the physical sciences are urged to acquire a working knowledge of computer programming at an early stage of their university careers. This can be done by taking Information and Computer Science 1 or Physics 1.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements

English 28A-B-C plus one set of three interrelated courses chosen from the following sets of courses: 1) Comparative

Literature 50A-B-C, 2) Philosophy 20A-B-C, 3) History 29A-B-C, 4) any three modern foreign language courses in ascending order, or any three literature courses in translation in German, Russian, French, Italian, Spanish, Portuguese, or Classics. Students may use Humanities 1A-B-C in satisfaction of the School requirements.

GRADUATE PROGRAMS

A program of course work and research leading to the M.A. and Ph.D. degrees is offered in each of the three departments of the School. The individual programs are described in the following announcements of each department.

Department of Chemistry

UNDERGRADUATE PROGRAM

The major in Chemistry is elected by students planning careers in the chemical sciences and frequently also by those whose interests lie in biology, medicine, earth sciences, secondary education, business, and law. The curriculum of the Department is designed to satisfy the diverse needs of these students and others who may have occasion to study chemistry. The year course Chemistry 1, 2, 3 is prerequisite to all study in the Department at more advanced levels. The subject matter of these courses serves also as a thorough introduction to the varied aspects of modern chemistry for students who do not wish to pursue their studies beyond the introductory level. Chemistry 3, 4, 5 is a one-year sequence in Organic Chemistry which is required for Chemistry majors and for students of the life sciences. Certain more advanced courses required of Chemistry majors may also be of particular interest to the latter groups, among others.

The undergraduate program of the Chemistry Department emphasizes close contact with research. Chemistry majors are urged to engage in research under the direction of a faculty member.

Much of the important chemical literature is being and has been printed in foreign languages, principally German, Russian, and French. Reading competence in one or more of these languages is desirable, and many graduate schools require the demonstration of such competence as a prerequisite for an advanced degree. Chemistry majors are encouraged to acquire this competence.

Chemistry majors who are interested in teaching chemistry at the secondary level are urged to consult with their advisors and with the Office of Teacher Education early in their undergraduate careers. Chemistry majors who plan subsequent study in medical, dental, or other professional schools should request information concerning admission requirements directly from the schools which they seek to enter. Those intending to pursue graduate studies in chemistry should discuss their plans with their academic advisors.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: See page 160.

Departmental Requirements

Basic Requirements: Mathematics 2A-B-C (or H2A-B-C), Physics 5A-B-C and 5LA-B-C (or 3A-B-C and 3LA-B-C), Chemistry 1 through 6 and 2L through 6L, Chemistry 131A-B-C (or 130A-B-C), Chemistry 151 (or 150). Chemistry 12 and 13 may be substituted for the corresponding quarters of Chemistry 2 and 3, respectively.

Electives: Five courses chosen from the elective list below. These must include at least two chemistry courses (Chemistry 180 may be counted no more than once) and at least one of the laboratory courses in the following laboratory course group: Chemistry 152, Chemistry 153, Chemistry 160, Chemistry 170, Physics 150, Physics 151, Physics 152, Physics 153.

Elective List: All Chemistry courses numbered 152-263, Bio. Sci. 101F (Biochemistry), Bio. Sci. 101G (Molecular Biology), Bio. Sci. 205A-B (Biochemistry), Bio. Sci. 207 (Molecular Genetics), Physics 111A-B (Classical Mechanics), Physics 112A-B (Electromagnetic Theory), Physics 113A-B (Quantum Mechanics), Physics 115 (Statistical Physics), Physics 116 (Thermodynamics), Physics 132 (Nuclear Physics), Physics 133 (Solid State Physics), Physics 134 (Modern Optics), Physics 150 (Electronics), Physics 151 (Advanced Lab), Physics 152 (Advanced Lab), Physics 153 (Advanced Lab).

Scientific Breadth Requirements: A total of six additional four- or five-unit courses chosen from the offerings of the Departments of Mathematics and Physics and the School of Biological Sciences. (These may be taken on a Pass/Not Pass basis subject to the usual restrictions on Pass/Not Pass enrollment.)

Planning a Program of Study

The departmental requirements leave the student a great deal of latitude in choice of courses; the student can choose to pursue interests ranging from biochemistry on the one hand to chemical physics on the other. Many of the basic requirements above coincide with those of the School of Biological Sciences, and a double major in Chemistry-Biology does not require much extra course work. The Department is accredited by the American Chemical Society. While it is not necessary, it is desirable for students to pursue a course of study that the American Chemical Society judges to merit a certified degree. A certified degree specifically requires completion of the following courses: Physics 5A-B-C; Mathematics 3 (any two quarters); Chemistry 151, 152, 153; Chemistry 160 or 170 or 180; Chemistry 215.

Students should consult with their advisors on courses of study. A certified Chemistry major would normally be expected to take Chemistry 1, 2, 2L, 3, 3L, Mathematics 2, Information and Computer Science 1 or Physics 1, and Physics 5A-B and 5LA-B, plus one elective course per quarter during the freshman year. In the sophomore year the certified Chemistry major would normally take Chemistry 4, 4L, 5, 5L, 6, 6L, Mathematics 3, Physics 5C and 5LC, plus elective courses. Among these electives, Physics 5D and 5E would frequently be included. For the junior year Chemistry 131 (or 130), Chemistry 151, Chemistry 152, and Chemistry 153, plus two elective courses per quarter are recommended. In the senior year the student seeking the certified degree should take Chemistry 215 plus a number of electives, and should also include Chemistry 180 or some other laboratory course in chemistry among these electives. The foregoing program lists explicitly those chemistry courses which most graduate schools would expect their entering chemistry graduate students to have taken. Courses listed as electives may be used as needed to satisfy University, School, and departmental requirements. It should be recognized that courses such as Biological Sciences courses which count toward departmental requirements may be used simultaneously to satisfy University requirements if a student so desires. There is no language requirement, but Chemistry majors are urged to obtain reading competence in a foreign language through course work.

GRADUATE PROGRAM

The Department offers graduate programs leading to the M.A. and Ph.D. degrees in Chemistry. The Ph.D. degree is

granted in recognition of breadth and depth of knowledge of the facts and theories of modern chemistry and an ability to carry out independent chemical research demonstrated through submission of an acceptable doctoral dissertation. The M.A. degree may be earned either through submission of an acceptable Master's thesis (Plan I) or through an approved program of graduate course work (Plan II). A Master's degree is not a prerequisite for admission to the Ph.D. program.

All students upon entering the graduate programs are required to take a series of Area Examinations which test the students' competence in the general areas of chemistry, e.g., organic, physical, inorganic, at the undergraduate level. The Area Examinations are designed to ensure a proper fundamental level of preparation for graduate study and are used as a guide in choosing the appropriate program of course work for each entering student.

Students in the Ph.D. program are expected to demonstrate their knowledge of chemistry at the advanced level through satisfactory completion of a series of Cumulative Examinations. These exams are designed to encourage the independent study of chemistry through reading of the classic and current chemical literature and attendance at advanced seminars and colloquia. Normally, beginning with the second year of graduate study, students must take the monthly examinations until four have been passed. This requirement must be satisfied within 12 consecutive Cumulative Examinations.

Following completion of the Cumulative Examination requirement, participants in the Ph.D. program take an oral examination for formal Advancement to Candidacy. This exam normally comes in a student's third graduate year and consists of an oral defense, before a faculty committee, of the student's dissertation research project and a second original research proposition conceived, developed, and documented by the student. The committee may examine the student at this time on any subject it deems relevant to the independent pursuit of chemical research.

Students in the Ph.D. and M.A. Plan I (Thesis) programs are required to complete a minimum of seven approved courses, including six graduate level courses in chemistry. The M.A. Plan II (Course Work) program requires that the student complete ten graduate-level chemistry courses. Graduate students are expected to maintain a grade point average of B or better to remain in good academic standing.

Training in teaching is an integral part of each graduate

program, and all graduate degree candidates are expected to participate in the teaching program for at least three quarters during their graduate career.

The most important component of the Ph.D. program is the Doctoral Dissertation, which must describe the results of original research performed by the student under the supervision of a faculty member of the Department. The criterion for acceptability of the dissertation is that its contents be of a quality suitable for publication in a scientific journal of high editorial standards. Each Ph.D. candidate is expected to present the work described in the completed dissertation in a seminar before the Department, following which the candidate will be examined in public on the contents of the dissertation by a committee of the faculty. A Master's thesis presented in partial fulfillment of the requirements for the M.A. under Plan I must also describe the results of a student's original research performed under the direction of a faculty member. However, no public oral defense of the Master's thesis is required.

Residency requirements specify a minimum of six quarters in residence at UCI for Ph.D. candidates and three quarters for M.A. candidates.

Some faculty from the Department of Chemistry are members of an interdisciplinary biophysics and biophysical chemistry group. The program provides an opportunity for interaction among graduate students and faculty from a number of UCI departments who share common interests in biophysics and biophysical chemistry. Participating graduate students pursue a degree in the department best suited to their own background and research interests. A program of seminars brings the group together monthly to discuss research problems of mutual interest, and a regular series of interdisciplinary courses is offered by the participating faculty to provide formal instruction in areas encompassed by biophysics and biophysical chemistry. See page 79.

The following lists specify requirements for each of the graduate programs offered by the Department of Chemistry.

Master of Arts in Chemistry – Plan I (Thesis Plan)

Completion of the Area Examination requirement.

Completion of a minimum of seven approved courses, including six graduate-level courses in chemistry (as specified by the Department and excluding Chemistry 280, 290, and 291) with maintenance of an average grade of B or better in all course work undertaken.

Completion of the teaching requirement.

Completion of three quarters in residence at UCI.

Submission of an acceptable Master's thesis.

Master of Arts in Chemistry – Plan II (Course Work Plan)

Completion of the Area Examination requirement.

Completion of ten graduate-level courses in chemistry (excluding Chemistry 290 and 291 and counting Chemistry 280 no more than once) with an average grade of B or better.

Maintenance of an average grade of B or better in all course work undertaken.

Completion of the teaching requirement.

Completion of three quarters in residence at UCI.

Doctor of Philosophy in Chemistry

Completion of the Area Examination requirement.

Completion of a minimum of seven approved courses, including six graduate-level courses in chemistry (as specified by the Department and excluding Chemistry 280, 290, and 291) with maintenance of an average grade of B or better in all course work undertaken.

Completion of the Cumulative Examination requirement.

Completion of the Oral Examination requirement for Advancement to Candidacy.

Completion of the teaching requirement.

Completion of six quarters in residence at UCI.

Submission of an acceptable doctoral dissertation.

CHEMISTRY FACULTY

Max Wolfsberg, Ph.D. Washington University, *Professor of Chemistry and Chairman of the Department*

Philip N. Borer, Ph.D. University of California, Berkeley, *Assistant Professor of Chemistry*

David A. Brant, Ph.D. University of Wisconsin, *Professor of Chemistry*

Marjorie C. Caserio, Ph.D. Bryn Mawr College, *Professor of Chemistry*

Robert J. Doedens, Ph.D. University of Wisconsin, *Associate Professor of Chemistry*

D. Michael Duggan, Ph.D. University of Illinois, *Assistant Professor of Chemistry*

Everly B. Fleischer, Ph.D. Yale University, *Professor of Chemistry and Dean of the School of Physical Sciences*

Fillmore Freeman, Ph.D. Michigan State University, *Professor of Chemistry*

Vincent P. Guinn, Ph.D. Harvard University, *Professor of Chemistry*

Warren J. Hehre, Ph.D. Carnegie-Mellon University, *Associate Professor of Chemistry*

Edward K.C. Lee, Ph.D. University of Kansas, *Professor of Chemistry*

Robert T. McIver, Ph.D. Stanford University, *Associate Professor of Chemistry*

George E. Miller, D. Phil. Oxford University, *Lecturer in Chemistry and Reactor Supervisor*

Mario Molina, Ph.D. University of California, Berkeley, *Assistant Professor of Chemistry*

Harold W. Moore, Ph.D. University of Illinois, *Professor of Chemistry*

Larry E. Overman, Ph.D. University of Wisconsin, *Associate Professor of Chemistry*

F.S. Rowland, Ph.D. University of Chicago, *Professor of Chemistry*

Kenneth J. Shea, Ph.D. The Pennsylvania State University, *Assistant Professor of Chemistry*

Constance E. Suffredini, M.A. Lehigh University, *Lecturer in Chemistry*

Robert W. Taft, Ph.D. Ohio State University, *Professor of Chemistry*

UNDERGRADUATE COURSES

NOTE: The undergraduate chemistry curriculum was changed, effective fall, 1976. Courses formerly numbered Chemistry 1A-B-C (General Chemistry), Chemistry 51A-B-C (Organic Chemistry), and the corresponding laboratory courses (designated by L) have been replaced by Chemistry 1, 2, 3, 4, 5, 6, and corresponding laboratory courses. In addition, the honors courses formerly numbered 11B-C and 55B-C have been replaced with a two-quarter honors sequence, Chemistry 12 and 13. In anticipation of these changes, the Chemistry 1C course offered in spring, 1976 was equivalent to the new Chemistry 3 course and satisfies the Chemistry 3 prerequisite for Chemistry 4. The follow-

ing approximate correspondence exists between old and new courses:

Former Course Number	New Course Number
1A	1
1B	2
1C (Spring, 1975 or Before)	No Equivalent
1C (Spring, 1976 Only)	3
51A	3
51B	4
51C	5
No Equivalent	6

1 Stoichiometry and Chemical Equilibrium (4) F

Lecture, three hours; discussion, one hour. Properties of gases, liquids, solids, and solutions; chemical equilibrium. Prerequisites for Chemistry 1: high school chemistry; three years of high school mathematics; high school physics is recommended. (Students lacking some prerequisites for Chemistry 1 may be admitted by consent of the Department.)

2 Chemical Thermodynamics and Atomic Structure (3) W

Lecture, three hours; discussion, one hour. Chemical thermodynamics; electrochemistry; atomic structure and periodic properties; ionic bonds; nuclear chemistry. Corequisite: Chemistry 2L. Prerequisite: Chemistry 1.

2L Introductory Chemistry Laboratory (2) W

Laboratory, four hours. Provides training and experience in basic laboratory techniques as applied to reaction stoichiometry, quantitative analysis, and chemical equilibrium. Corequisite: Chemistry 2. Prerequisite: Chemistry 1.

3 Molecular Structure and Reaction Mechanisms (3) F, S

Lecture, three hours; discussion, one hour. Covalent bonding; molecular structure and stereochemistry; rates and mechanisms of chemical reactions. Emphasis will be placed upon applications to organic chemistry. Corequisite: Chemistry 3L. Prerequisite: Chemistry 2, 2L.

3L Introductory Chemistry Laboratory (2) F, S

Laboratory, four hours. Continuation of Chemistry 2L with emphasis placed upon the application of experimental techniques to chemical equilibrium, chemical thermodynamics, chemical kinetics, and introductory organic chemistry. Corequisite: Chemistry 3. Prerequisites: Chemistry 2, 2L.

4 Organic Reactions and Spectroscopy (3) F, W

Lecture, three hours; discussion, one hour. Ionic, radical, and concerted organic reactions; molecular structure and spectroscopy. Corequisite: Chemistry 4L. Prerequisites: Chemistry 3, 3L.

4L Intermediate Chemistry Laboratory (2) F, W

Laboratory, four hours. Provides experience in modern techniques of organic chemistry using selected experiments to illus-

trate the topics introduced in Chemistry 4. Corequisite: Chemistry 4. Prerequisites: Chemistry 3, 3L.

5 Organic Chemistry (3) W, S

Lecture, three hours; discussion, one hour. Chemistry of functional groups, including carbonyl group reactions, amides, peptides, carbohydrates. Corequisite: Chemistry 5L. Prerequisites: Chemistry 4, 4L.

5L Intermediate Chemistry Laboratory (2) W, S

Laboratory, four hours. Continuation of Chemistry 4L. Experiments are selected to illustrate the topics introduced in Chemistry 5. Corequisite: Chemistry 5. Prerequisites: Chemistry 4, 4L.

6 Inorganic, Organometallic, and Photochemistry (3) S

Lecture, three hours; discussion, one hour. Transition metal chemistry; organometallic chemistry; photochemistry; industrial chemistry; biosynthesis. Corequisite: Chemistry 6L. Prerequisites: Chemistry 5, 5L.

6L Organic-Inorganic Chemistry Laboratory (3) S

Laboratory, seven hours. Provides special guidance in use of the chemical library in conjunction with individualized experiments which relate to the lecture topics of Chemistry 6 and which utilize current methods of research. Corequisite: Chemistry 6. Prerequisites: Chemistry 5, 5L.

10A-B Elementary Physical Sciences (4-4) W, S

Lecture, three hours; discussion, two hours. The purpose of this course is to prepare the students for introductory courses in chemistry and physics. Topics covered include units and systems of measurement, conversion factors, significant figures, experimental error propagation, slide rule use, methods of problem solving, atomic and molecular structure, phase change, solutions, ionization, chemical reactions, stoichiometry, oxidation-reduction, chemical problem solving, concepts such as pressure, volume, temperature, mass, density, force, energy, velocity, acceleration, momentum, heat capacity, electric charge, electric current, and the mole. Prerequisites: 10A, none; 10B, passing grade in Chemistry 10A. This course is not open to students with grade C- or better in Chemistry 1. Note: This course satisfies no requirements other than contribution to the 180 units required for graduation.

12 Honors Chemical Thermodynamics and Atomic Structure (3) W

Lecture, three hours; discussion, one hour. Designed for the student with superior ability and preparation. The format and syllabus follow closely those of Chemistry 2, but topics will be developed more extensively. Corequisite: Chemistry 12L. Prerequisite: successful completion of Chemistry 1 and consent of instructor.

12L Honors Introductory Chemistry Laboratory (2) W

Laboratory, four hours. The course is similar to Chemistry 2L but provides greater opportunity for exercise of individual initiative in design and execution of experiments. Corequisite: Chemistry 12. Prerequisite: successful completion of Chemistry 1 and consent of instructor.

13 Honors Molecular Structure and Reaction Mechanisms (3) S

Lecture, three hours; discussion, one hour. Designed for the student with superior ability and preparation. The format and syllabus follow closely those of Chemistry 3, but topics will be developed more extensively. Corequisite: Chemistry 13L. Prerequisite: successful completion of Chemistry 12 and 12L.

13L Honors Introductory Chemistry Laboratory (2) S

Laboratory, four hours. The course is similar to Chemistry 3L but provides greater opportunity for exercise of individual initiative in design and execution of experiments. Corequisite: Chemistry 13. Prerequisite: Chemistry 12, 12L.

20 Scientific Controversy (4) F

Lecture, three hours. The speculations, arguments plus counter-arguments, false leads, and occasional fierce controversies that produce "well-established scientific knowledge" have an intellectual flavor that contrasts sharply with the processes required in learning the details of presently accepted scientific understanding. The nature of the scientific process is examined through study of specific arguments and controversies, both past and current. Current topics such as protective inoculation, pesticides in the environment, fluoridation, and artificial radioactivity have been considered in earlier versions of this course. Specific topics determined at beginning of course. Chemistry 1, 2, 3 not required. Not offered 1977.

21 Chemistry of Nutrition (4) S

Lecture, three hours. The chemistry of nutrition is one of the more interesting illustrations and potentially beneficial applications of chemical knowledge. This course will consider the properties, chemical reactions, and biological functions of the forty chemical ingredients known to be essential in the human diet. Class time will be primarily devoted to the discussion and clarification of selected readings; a small amount of laboratory work will be included. Chemistry 1, 2, 3 not required. Not offered 1978.

22 Radioactivity and Radiation (4) S

Lecture, three hours. A study of the impact of nuclear science and technology on society. The uses of nuclear energy for electric power generation, transportation, medicine, criminology, and scientific research will be examined. Chemistry 1, 2, 3 not required.

101A-B Chemistry of Environmental Pollution (4-4)

Lecture, three hours. The chemistry of air, water, and soil pollution will be examined. The chemical fate of pollutants will be traced from their sources, and remedial alternatives to current pollution patterns will be discussed from a chemical point of view. Prerequisites: Chemistry 1, 2, 3. Not offered 1977-78.

130A-B-C Physical and Biophysical Chemistry

Lecture, three hours; discussion, one hour. Prerequisites: Chemistry 1, 2, 3, Physics 5A-B or 3A-B-C, Mathematics 2A-B-C. Prerequisites for 130B-C: successful completion of previous courses in the sequence.

130A Chemical Thermodynamics (4) F

Classical thermodynamics of pure and multicomponent systems. Development of the conditions of chemical and heterogeneous equilibrium. Multiple equilibria. The properties of solutions.

130B Chemical Kinetics and Quantum Chemistry (4) W

Kinetics and mechanisms of chemical reactions. The theory of chemical reaction rates. Catalysis. Chemical relaxation. Atomic and molecular energy levels. Chemical bonding. Statistical thermodynamics.

130C Molecular Structure Determination (4) S

Same as Biological Sciences 123. Determination of the structure and properties of molecules and macromolecules using spectroscopic, thermodynamic, hydrodynamic, and radiation scattering methods.

131A-B-C Physical Chemistry

Lecture, three hours; discussion, one hour. Prerequisites: Chemistry 1, 2, 3, Physics 5A-B, Mathematics 2A-B-C. Prerequisites for 131B-C: successful completion of previous courses in the sequence.

131A Quantum Chemistry and Molecular Structure (4) F

Development of the principles of chemical bonding, spectroscopy, and molecular structure determination.

131B Statistical Mechanics and Thermodynamics (4) W

Development of the fundamental distribution laws, the laws of thermodynamics, and the conditions for chemical and heterogeneous equilibrium.

131C Chemical Kinetics (4) S

Development of the principles of kinetic molecular theory of gases, chemical dynamics, and elementary reactions in solution and at interfaces.

150 Quantitative Chemical Analysis (4) F

Lecture, three hours; laboratory, seven hours. A terminal course in quantitative chemistry. Theoretical aspects of common methods of analytical chemistry will be treated in lecture and illustrated with laboratory analyses of standard samples. Special emphasis will be given to the interpretation and significance of analytical results and to analytical applications in medical and biological sciences. Prerequisites: Chemistry 2L, 3L.

151 Fundamental Methods of Experimental Chemistry (4) F

Lecture, three hours; laboratory, six hours. For Chemistry majors and others interested in experimental chemistry. Fundamental techniques used in analytical, inorganic, organic, and physical chemistry will be treated in lectures and illustrated with laboratory experiments which extend the student's previous laboratory experience. Emphasis is on providing a firm understanding of the bases of the techniques. Topics include statistical treatment of data, elementary FORTRAN programming, gravimetry, titrimetry, simple material handling technology, separation methods; optical, electrochemical, and radiochemical measurements. Prerequisites: Chemistry 2L, 3L, 4L, 5L, 6L.

152 Advanced Chemical Analysis (4) W

Lecture, two hours; prelaboratory discussion, two hours; laboratory, five hours. Lectures will treat the modern practice of quantitative and qualitative analysis of real samples. In laboratory experiments, techniques including UV, visible, IR, NMR, and atomic absorption spectrometry. Gas chromatography, neutron activation analysis, and mass spectrometry will be used for analysis of samples of industrial and environmental origins. Prerequisite: Chemistry 151.

153 Chemistry Advanced Laboratory (4) S

Prelaboratory discussion, one hour; laboratory, nine hours. A wide variety of experiments utilizing physical-chemical methods will be offered. Experiments deal with atomic and molecular spectroscopy, gas and solution kinetics, thermochemistry, and electric and magnetic measurements. Prerequisites: Chemistry 151 and Chemistry 131C (may be taken concurrently).

160 Qualitative Organic Analysis (4) F

Lecture, two hours; laboratory, eight hours. Emphasizes modern spectral and chemical methods of identification of organic compounds. Prerequisites: Chemistry 3, 4, 5, 6.

170 Radioisotope Techniques (4) W

Lecture, three hours; laboratory, four to six hours. Basic theory and practice of production, separation, and determination of radioactive isotopes with emphasis on particular applications in chemistry and biology. Prerequisite: Chemistry 150, or 151, or consent of the Department.

180 Undergraduate Research (4-4-4) F, W, S

The student wishing to engage in research for credit should arrange with a member of the staff to sponsor and supervise such work. Prerequisite: consent of a faculty sponsor.

192 Tutoring in Chemistry (1 to 4 per quarter) F, W, S

Students may enroll in a section of this course to earn course credit for tutoring associated with the Physical Sciences Peer Tutoring Program or for activities as a student assistant in conjunction with some specific chemistry course. Admission to the course will depend upon demonstration of suitable qualifications and approval of the instructor in charge. Students may take the course for P/NP credit only; the number of units per term (1 to 4) will be determined by the specific activities involved. Prerequisite: permission of the Department. Note: This course satisfies no degree requirements other than contribution to the 180 units required for graduation. No more than 8 units earned in tutoring courses may be counted toward the required total of 180.

199 Independent Study in Chemistry (1 to 4 per quarter)

Prerequisite: consent of instructor.

GRADUATE COURSES**201 Organic Reaction Mechanisms I (4) F**

Lecture, three hours. An advanced treatment of the basic principles of modern organic chemistry. Topics to be covered include molecular orbital theory, orbital symmetry control of organic

reactions, aromaticity, carbonium ion chemistry, and free radical chemistry. Prerequisites: Chemistry 130A-B-C or 131A-B-C.

202 Organic Reaction Mechanisms II (4) W

Lecture, three hours. Topics to be covered include the chemistry of carbenes and carbanions, conformational analysis, photochemistry, electrophilic substitutions, aromatic chemistry. Prerequisite: Chemistry 201.

203 Organic Spectroscopy (4) S

Lecture, three hours. A discussion of modern methods used in structure determination of organic molecules. Topics include mass spectrometry; ultraviolet, chiroptical, infrared, and nuclear magnetic resonance spectroscopy. Prerequisites: Chemistry 1-6.

204 Organic Synthesis I (4) W

Lecture, three hours. The fundamentals of modern synthetic organic chemistry will be developed. The major emphasis this quarter is on carbon-carbon bond forming methodology. Topics to be covered include carbonyl annulations, cycloadditions, sigmatropic rearrangements, and organometallic methods. Prerequisite: Chemistry 202.

205 Organic Synthesis II (4) S

Lecture, three hours. The fundamentals of modern synthetic organic chemistry will be developed. The major emphasis this quarter is on natural product total synthesis and retrosynthetic (antithetic) analysis. Prerequisite: Chemistry 204.

211 Chemical Thermodynamics (4) W

Lecture, three hours. A detailed discussion of the fundamental principles of chemical thermodynamics will be undertaken. The thermodynamics of single- and multicomponent gas phase and condensed phase systems will be discussed. Prerequisites: Chemistry 130A-B-C or 131A-B-C.

213 Chemical Kinetics (4) S

Lecture, three hours. Surveys gas phase and organic reaction mechanisms and their relationship to kinetic rate laws; treats the basic theory of elementary reaction rates. A brief presentation of modern cross-sectional kinetics is included. Prerequisites: Chemistry 130A-B-C or 131A-B-C.

215 Inorganic Chemistry I (4) F

Lecture, three hours. Principles of modern inorganic chemistry with applications to chemical systems of current interest. Major topics include the nature and properties of the chemical bond, inorganic stereochemistry, coordination and organometallic compounds, and physical methods in inorganic chemistry. Prerequisites: Chemistry 6 and 130A-B-C or 131A-B-C.

216 Inorganic Chemistry II (4) W

Lecture, three hours. Inorganic reaction rates and mechanisms, including substitution, electron transfer, and organometallic reactions. Applications to selected synthetic and catalytic systems. Bioinorganic chemistry. Prerequisite: Chemistry 215.

230 Molecular Spectroscopy (4) F

Lecture, three hours. Theory and techniques of spectroscopy as used for the study of molecular structures and properties. Infra-

- red, Raman, microwave, and magnetic resonance spectroscopy are covered. Prerequisites: Chemistry 130A-B-C or 131A-B-C.
- 231 Quantum Chemistry (4) F**
Lecture, three hours; discussion, one hour. Fundamentals of quantum mechanics will be discussed. The application of quantum mechanics to problems in atomic systems will be considered. Prerequisites: Chemistry 130A-B-C or 131A-B-C.
- 232 Statistical Mechanics (4) S**
Lecture, three hours; discussion, one hour. The fundamental postulates of statistical mechanics will be examined and the formalism of the method developed. Applications to statistical thermodynamic problems of chemical interest, e.g., dilute and real gases, crystals, liquids, solutions, chemical equilibrium will be considered. Prerequisites: Chemistry 130A-B-C or 131A-B-C.
- 233 Nuclear and Radiochemistry (4) S**
Lecture, three hours. Brief introductions are presented to nuclear structure, nuclear reactions, nuclear energy, radiochemical analysis, isotope effects, radiation chemistry, hot-atom chemistry, tracer methods, and nuclear processes as chemical probes. Prerequisites: Chemistry 130A-B-C or 131A-B-C or consent of the Department.
- 234 Advanced Chemical Kinetics (4)**
Variable format. In some years it has been identical with the winter course in Gas Kinetics, which is given periodically for a nationwide audience. On other occasions it has been a cluster of lecture series on various modern kinetics topics. Prerequisite: Chemistry 213 or consent of the Department. Not offered 1977-78.
- 235 Molecular Quantum Mechanics (4) W**
Lecture, three hours; discussion, one hour. The application of quantum mechanics to the calculation of molecular properties will be discussed. Attention will be given to the electronic structure of molecules. Prerequisites: Chemistry 231 or equivalent.
- 240 Forensic Chemistry (4) W**
Lecture, three hours. Some of the lectures may be presented by practicing criminalists. The application of chemical techniques to the problems of crime investigation will be discussed. Prerequisites: Chemistry 3, 4, 5, 6 and Chemistry 130A-B-C or 131A-B-C or consent of instructor.
- 251 Special Topics in Organic Chemistry (4)**
Advanced topics in organic chemistry are discussed. The format, content, and frequency of the course are variable. Prerequisite: consent of the Department.
- 252 Special Topics in Physical Chemistry (4)**
Advanced topics in physical chemistry are discussed. The format, content, and frequency of the course are variable. Prerequisite: consent of the Department.
- 253 Special Topics in Inorganic Chemistry (4)**
Advanced topics in inorganic chemistry are discussed. The format, content, and frequency of the course are variable. Prerequisite: consent of the Department.
- 261 Biomolecular Structure (4)**
Lecture, three hours. The structure of biomolecules as determined both in the solid state and in solution will be discussed. Both diffraction and spectroscopic techniques will be discussed. Prerequisites: Chemistry 130A-B-C or Chemistry 131A-B-C. Not offered 1977-78.
- 262 Biopolymers in Solution (4) S**
Lecture, three hours. The thermodynamics and statistical mechanics of biopolymers will be covered. Both equilibrium and hydrodynamic methods will be discussed. Techniques such as viscosity, sedimentation, osmotic pressure, and light scattering will be covered. Prerequisites: Chemistry 130A-B-C or Chemistry 131A-B-C.
- 263 Biochemical Dynamics (4)**
Lecture, three hours. This course will discuss enzyme kinetics. A general discussion of multistep kinetics will be covered. Active sites, factors contributing to enzymic catalysis, and chemistry and biochemistry of co-factors will be discussed. Prerequisites: Chemistry 130A-B-C or Chemistry 131A-B-C. Not offered 1977-78.
- 280 Research (2 to 12) F, W, S**
Organic synthesis, reaction kinetics, radiochemistry, nuclear chemistry, photochemistry, theoretical chemistry, physical organic chemistry, inorganic chemistry, physical chemistry of macromolecules. Prerequisite: consent of the Department.
- 290 Seminar (4) F, W, S**
Weekly seminars and discussions on general and varied topics of current interest in chemistry. Prerequisite: graduate standing.
- 291 Research Seminar (4)**
Seminars organized for detailed discussion of research problems of current interest in the Department. The format, content, and frequency of the course are variable. Prerequisite: consent of the Department.

Department of Mathematics

Mathematics is a humanistic discipline. The goal of the pure mathematician is to create new mathematics of striking beauty and elegance; the applied mathematician demands, in addition, that newly created mathematics reveal inner aspects of phenomena drawn from nature and experience.

It is remarkable that mathematics, pursued throughout the ages for its transcendental beauty, also is the vehicle used for the description of reality by the physical, biological, and social sciences, as well as by the engineering disciplines. It is not fully understood why mathematics and nature are so closely interrelated, but it is so.

The Department of Mathematics is engaged in teaching and fundamental research in a wide variety of basic mathematical disciplines. Its activity is reflected in undergraduate and graduate courses which are responsive to new developments at the research frontier and the ever-changing requirements of government, industry, and education. The Department of Mathematics offers undergraduate and graduate students the opportunity to fashion a thorough and soundly based program of study leading to professional competence in mathematical research, or in an area of application.

The curriculum in mathematics includes opportunities for supervised individual study and research, and is augmented by seminars and colloquia. It is designed to be compatible with curricular structures at other collegiate institutions in California so as to enable students transferring to UCI to continue their programs of mathematics study.

UNDERGRADUATE PROGRAM

Undergraduate mathematics courses are of several kinds: courses preparatory to advanced work in mathematics, the exact sciences, and engineering; courses for students of the social and biological sciences; and courses for liberal arts students and those planning to enter the teaching field.

The Department of Mathematics offers an honors program for students who have special interest and ability or who intend to do advanced work in mathematics or the sciences. The program begins with Mathematics H2A-B-C and H3A-B-C and will continue with upper-division courses.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: See page 160.

Departmental Requirements

Mathematics Major: Mathematics 2A-B-C (or H2A-B-C); Mathematics 3A-B-C (or H3A-B-C); 12 upper-division or graduate courses (48 units) in mathematics including Mathematics 120A-B-C and Mathematics 140A-B-C; three additional courses (12 units) in chemistry, mathematics, physics, or information and computer science.

Mathematics Major with a Concentration in Statistics: Mathematics 2A-B-C (or H2A-B-C); Mathematics 3A-B-C (or H3A-B-C); Mathematics 120A-B-C; Mathematics 131A-B-C; Mathematics 132A-B-C; Mathematics 140A-B-C; three mutually related upper-division courses (12 units) selected from a list of approved courses in a field of application; ability in computer programming (a knowledge of FORTRAN is recommended) demonstrated by completion

of an approved course, or by equivalent experience approved by the Department Chair.

Planning a Program of Study

The nature of our modern, technological society makes it certain that mathematical problems of increasing complexity will continue to occur in an astonishing and ever expanding variety of contexts. The mathematically trained person is essential to civilization and will continue to be so in the future. Perception and understanding of society and nature are considerably enhanced by a mathematical background.

There are a variety of career patterns the Irvine Mathematics major may select. In many instances, a double major (in Mathematics and an appropriate related field) provides the strongest preparation for the career described.

In consultation with their faculty advisors, students planning to major in Mathematics or in Mathematics with a Concentration in Statistics can plan a program of study which will enable them to meet the requirements for the major and at the same time pursue studies directed toward other specific educational objectives such as preparation for graduate school, public school teaching, or biomedical statistics.

Suggested course work for the student majoring in *Mathematics* includes:

Freshman Year: Mathematics 9 (Lower-Division Seminar), Mathematics 2A-B-C (Calculus) or Mathematics H2A-B-C (Honors Calculus).

Sophomore Year: Mathematics 3A-B-C (Second Year Calculus) or Mathematics H3A-B-C (Honors Second Year Calculus), and Mathematics 120A-B-C (Linear Algebra).

Junior Year: Mathematics 140A-B-C (Elementary Analysis) and other upper-division mathematics courses.

Senior Year: Upper-division mathematics courses.

Students preparing for graduate work in mathematics should consider selecting their upper-division course work from among the following: Mathematics 121A-B-C (Topics in Algebra), 141A-B (Introduction to Topology), 144A-B (Introduction to Complex Variables), 147A-B (Calculus on Manifolds), 155A-B (Recursion Theory and Logic), 162A-B (Introduction to Differential Geometry), 163 (Covering Spaces and the Fundamental Group), 210A-B-C (Real Analysis), 220A-B-C (Analytic Function Theory), and 230A-B-C (Algebra).

Students interested in scientific application of mathematics should consider Mathematics 143A-B-C (Methods of Mathematical Physics), Mathematics 142A-B-C (Differential Equations), and courses in biological sciences, chemistry, engineering, information and computer science, or physics.

Suggested course work for the student majoring in *Mathematics with a Concentration in Statistics*:

Freshman Year: Mathematics 9 (Lower-Division Seminar), Mathematics 2A-B-C (Calculus) or Mathematics H2A-B-C (Honors Calculus).

Sophomore Year: Mathematics 3A-B-C (Second Year Calculus) or Mathematics H3A-B-C (Honors Second Year Calculus), and Mathematics 120A-B-C (Linear Algebra).

Junior Year: Mathematics 140A-B-C (Elementary Analysis), Mathematics 131A-B-C (Mathematical Statistics), and other upper-division courses including courses in a field of application.

Senior Year: Mathematics 132A-B-C (Second Course in Mathematical Statistics), and other courses.

If the student is considering graduate work in mathematical statistics then Mathematics 210A-B-C (Real Analysis) should be considered in the senior year.

Some of the Possible Options for a Major in Mathematics

	Option One	Option Two
Freshman	Calculus	Calculus
Sophomore	More Calculus Linear Algebra	More Calculus Linear Algebra
Junior	Elementary Analysis Statistics Computer Science	Elementary Analysis Differential Equations
Senior	Probability More Statistics or Operations Research	Topics in Applications
	Option Three	Option Four
Freshman	Calculus	Calculus
Sophomore	More Calculus Linear Algebra	More Calculus Linear Algebra
Junior	Elementary Analysis Logic and Foundations	Elementary Analysis Geometry and Topology
Senior	Philosophy Topics in Pure Mathematics	Topics in Pure Mathematics

After graduation, some students will continue their education in applications of mathematics, in professional schools, or in graduate school in mathematics, and some may seek immediate employment.

GRADUATE PROGRAM

Graduate courses are designed to meet the needs of students doing graduate work in mathematics and in those disciplines that require graduate-level mathematics for their study. Among the fields covered are analysis, algebra, functional analysis, geometry and topology, probability and statistics, ordinary and partial differential equations, and mathematical logic.

In addition to formal courses, there are seminars for advanced study toward the Ph.D. in various fields of mathematics. Topics will vary from year to year. Each seminar is conducted by a staff member specializing in the subject studied. Enrollment will be subject to the approval of the instructor in charge.

Master of Arts in Mathematics

The Master's degree programs serve a dual purpose: for some they serve as terminal programs of mathematical education; for others they lead to study and research at the doctoral level. However, the Master's degree is not a prerequisite for the Doctor of Philosophy degree.

The Master's degree is offered under Plans I and II. There are no specific course requirements for the Master's degree. On the other hand, demonstrated competence and knowledge of algebra and analysis are required for this degree. Examinations, written or oral, will be given to determine the relevant preparation of candidates. For Master's candidates, the ability to read the literature of mathematics in French, German, or Russian is required.

Plan I for the Master's degree requires the equivalent of the successful completion of at least eight courses (at least five at the graduate level), the writing of an acceptable research dissertation, and the passing of examinations (written or oral) designed to test the competence of the candidate in the fields of algebra and analysis.

Plan II for the Master's degree requires the equivalent of the successful completion of at least twelve courses (at least eight at the graduate level) and the passing of examinations (written or oral) designed to test the competence of the candidate in the fields of algebra and analysis.

The residence requirement for the Master's degree ordinarily is satisfied by full-time registration for three quarters just prior to the granting of the degree. It is possible for a candidate to take leaves of absence between matriculation and the final three quarters.

Doctor of Philosophy in Mathematics

The Doctor of Philosophy degree requires successful completion of a program of courses, seminars, and individual study that prepares a candidate for a career in mathematical teaching and research. The student is expected to have both breadth of knowledge, as demonstrated by advanced knowledge and competence in algebra and analysis, and depth of knowledge, as demonstrated by profound familiarity with a well-defined subject in mathematics (e.g., Banach algebras, group theory, operator theory, probability theory, topology, categorical algebra).

There are two general requirements for the Ph.D.: the passing of written and/or oral examinations, and the writing and defense of a dissertation embodying creative research that makes a new and valuable contribution to the field of concentration.

Each candidate must demonstrate the ability to read the literature of mathematics in two of the following languages: French, German, or Russian.

The examinations for predoctoral students are divided into two sets: those used to demonstrate the academic preparation of the student; those used to evaluate the student's qualifications for admission to candidacy for the Ph.D.

The first set (administered by the Department of Mathematics) may consist of both oral and written examinations. The final qualifying examination is conducted by a candidacy committee on behalf of the Graduate Council. This committee, consisting of scholars in the field of concentration and scholars in other fields, recommends the admission of students to candidacy. A doctoral committee is appointed to guide and supervise candidates through their research, study, and writing for the Doctor of Philosophy degree.

MATHEMATICS FACULTY

Howard L. Resnikoff, Ph.D. University of California, Berkeley, *Professor of Mathematics and Chairman of the Department*

Takeo Akasaki, Ph.D. University of California, Los Angeles, *Associate Professor of Mathematics and Vice Chairman of the Department*

Bruce M. Bennett, Ph.D. Columbia University, *Associate Professor of Mathematics*

Frank B. Cannonito, Ph.D. Adelphi University, *Associate Professor of Mathematics*

Donald A. Darling, Ph.D. California Institute of Technology, *Professor of Mathematics*

Richard A. Denholm, Ed.D. Western Reserve University, *Supervisor of Teacher Education, Lecturer in Mathematics*

William F. Donoghue, Jr., Ph.D. University of Wisconsin, *Professor of Mathematics*

Paul C. Eklof, Ph.D. Cornell University, *Associate Professor of Mathematics*

Mark Finkelstein, Ph.D. Stanford University, *Associate Professor of Mathematics*

Michael D. Fried, Ph.D. University of Michigan, *Professor of Mathematics*

John C. Holladay, Ph.D. Yale University, *Professor of Mathematics*

Richard K. Juberg, Ph.D. University of Minnesota, *Professor of Mathematics*

Gerhard K. Kalisch, Ph.D. University of Chicago, *Professor of Mathematics*

Stepan Karamardian, Ph.D. University of California, Berkeley, *Professor of Mathematics and Administration*

Abel Klein, Ph.D. Massachusetts Institute of Technology, *Assistant Professor of Mathematics*

Ray A. Kunze, Ph.D. University of Chicago, *Professor of Mathematics*

George S. McCarty, Ph.D. University of California, Los Angeles, *Associate Professor of Mathematics*

William Messing, Ph.D. Princeton University, *Associate Professor of Mathematics*

Marion Orton, Ph.D. Indiana University, *Assistant Professor of Mathematics*

David L. Rector, Ph.D. Massachusetts Institute of Technology, *Associate Professor of Mathematics*

Robert C. Reilly, Ph.D. University of California, Berkeley, *Assistant Professor of Mathematics*

Bernard Russo, Ph.D. University of California, Los Angeles, *Associate Professor of Mathematics*

Stephen Scheinberg, Ph.D. Princeton University, *Professor of Mathematics and Associate Dean of the School of Physical Sciences*

Chester C. Seabury, Ph.D. Stanford University, *Assistant Professor of Mathematics*

William H. Smoke, Ph.D. University of California, Berkeley, *Associate Professor of Mathematics*

- Noboru Suzuki, Ph.D. Tohoku University, *Professor of Mathematics*
- Edward O. Thorp, Ph.D. University of California, Los Angeles, *Professor of Mathematics*
- Howard G. Tucker, Ph.D. University of California, Berkeley, *Professor of Mathematics*
- Robert W. West, Ph.D. University of Michigan, *Associate Professor of Mathematics*
- Joel J. Westman, Ph.D. University of California, Los Angeles, *Associate Professor of Mathematics*
- Robert J. Whitley, Ph.D. New Mexico State University, *Professor of Mathematics*
- Janet L. Williams, Ph.D. Brandeis University, *Associate Professor of Mathematics*
- James J. Yeh, Ph.D. University of Minnesota, *Professor of Mathematics*

LOWER-DIVISION COURSES

1 Pre-Calculus Mathematics (4) F, W, S

Lecture, two hours; laboratory, two hours. The purpose of this course is to prepare the student for calculus and other mathematics courses. It covers inequalities, exponentials, logarithms, trigonometry, elementary analytic geometry, and systems of simultaneous equations. The course is offered on a self-paced basis, P/NP only. The course satisfies no requirements other than contribution to the 180 units required for graduation.

2A-B-C Calculus

Lecture, three hours; quiz, two hours. Several sections are offered: one designed for majors in Biological Sciences; one designed for majors in Information and Computer Science and Social Sciences; and one designed for majors in Physical Sciences and Engineering. All sections will cover essentially the same material, but the distinct sections provide accommodation for different viewpoints appropriate to the interests of the student. Regardless of major, students may enroll in the section of their choice. Prerequisite: Mathematics 1 or a score of at least 3 on the Advanced Placement Examination in calculus. Waiver of prerequisites: At certain times throughout the year, the Mathematics Department will offer an examination for those who wish to waive the Mathematics 1 prerequisite. This examination must be passed in the quarter prior to enrolling in Mathematics 2A. In addition, waiver of prerequisites may be granted by consent of the instructor.

2A (4) F, W, S

Introduction to derivatives, calculation of derivatives of algebraic functions, and applications of derivatives (approximations, curve plotting, related rates, maxima and minima). Indefinite integrals. Differentiation and integration of sines and cosines.

2B (4) F, W, S

Definite integrals, their applications (areas, volumes, etc.), and methods of integration. Logarithmic and exponential functions.

2C (4) F, W, S

Analytic geometry and polar coordinates. Multiple integrals. Infinite sequences and series, Taylor series.

H2A-B-C Honors Calculus (4-4-4) F, W, S

Lecture, three hours; quiz, two hours. Prerequisite: the prerequisite is the same as for Mathematics 2A-B-C, and, in addition, the consent of the instructor is required. The subject matter is that of Mathematics 2A-B-C, presented more rigorously.

3A-B-C Second Year Calculus

Lecture, three hours; quiz, two hours. Prerequisites: Mathematics 2A-B-C.

3A (4) F, W

Vectors and an introduction to linear algebra (matrices, linear transformations, dot products, determinants, systems of linear equations, vector spaces, subspaces, and dimension). Derivatives of vector functions.

3B (4) W, S

Vector calculus including maxima and minima of functions of several variables, multiple integrals, theorems of Green, Gauss, and Stokes.

3C (4) S

More linear algebra. Introduction to differential equations.

H3A-B-C Second Year Honors Calculus (4-4-4) F, W, S

Lecture, three hours; quiz, two hours. Prerequisites: Mathematics 2A-B-C (or H2A-B-C) and consent of instructor. The subject matter is that of Mathematics 3A-B-C, presented more rigorously.

4A-B-C Mathematics for Elementary Education (4-4-4) F, W, S

Lecture, three hours. This course meets the certification requirement for the multiple teaching credential in the State of California. Fundamental ideas of logic and set theory. Basic arithmetic properties of the real number system. Geometry in two and three dimensions. Topics in elementary number theory, probability, and statistics.

5A-B-C Mathematics for the Social and Natural Sciences (4-4-4) F, W, S and W, S, F

Lecture, three hours; quiz, two hours. This is a course on the fundamentals of modern statistics. Topics in probability theory include sampling, conditional probability and Bayes' rule, binomial distribution, normal distribution, and random variables. Topics in statistics include sampling and sampling distributions, estimation, hypothesis testing, analysis of variance, nonparametric methods, regression, and correlation.

6A-B-C Finite Mathematics (4-4-4) F, W, S

Lecture, three hours; quiz, two hours. Logic, sets, combinatorics, probability, vectors, matrices. Applications to linear programming, game theory, and graph theory. Designed primarily for computer science majors.

7 Basic Statistics (4) F, W, S

Lecture, three hours; quiz, two hours. Fundamental concepts of statistics, including mean, standard deviation, correlation, bi-

nomial distribution, normal distribution, Chi Square. Examples from many fields will be given to illustrate effective uses of statistics.

8 Introduction to Linear Algebra (4) S

Lecture, three hours. Vector spaces, systems of linear equations, matrices, linear transformations, determinants. Prerequisites: two years high school algebra or Mathematics 1 or consent of instructor. Not offered every year.

9 Lower-Division Seminar (1) F, W, S

Seminar, one hour. This course usually consists of readings in the history of mathematics under the supervision of a faculty member. It is designed to encourage a close working relationship of the student with a faculty member at an early stage in the student's career.

13 Introduction to Abstract Mathematics (4) S

Lecture, three hours. The purpose of this course is to expose students to the style of precise definition and rigorous proof which is characteristic of modern mathematics. The actual mathematical content is purposely kept elementary — sets, countability, ordered sets, and so on — so that the students can focus their main efforts on learning to follow, and even produce, closely-reasoned mathematical deductions. This course is strongly recommended for freshman and sophomore mathematics majors as preparation for upper-division courses such as Mathematics 120 and 140. Nonmajors with an interest in rigorous thought are also welcome.

15 What is Mathematics? (4) W

Lecture, three hours. A course intended to acquaint nonspecialists with the main currents and ideas in mathematics as an art and science. Technical material will be kept at a minimum, consistent with developing an appreciation of the scope and methods of modern mathematics. Not offered every year.

UPPER-DIVISION COURSES

105A-B-C Numerical Analysis (4-4-4) F, W, S

Lecture, three hours. Interpolation, polynomial approximation, numerical differentiation and integration, difference equations, iterative solutions of nonlinear equations. Prerequisites: Mathematics 2A-B-C. Not offered every year.

111A-B-C Projective Geometry (4-4-4) F, W, S

Lecture, three hours. Elementary plane projective geometry. Axioms, the real projective plane, finite geometries, Desargues' theorem, Pappus and Pascal theorems, coordinate systems. Not offered every year.

120A-B-C Linear Algebra (4-4-4) F, W, S

Lecture, three hours. Introduction to concepts in algebra, with emphasis on linear algebra. Groups, rings, fields, vector spaces, linear transformations, duality, inner products, eigenvalues and eigenvectors, minimal polynomial, Jordan form. Prerequisites: Mathematics 2A-B-C.

121A-B-C Topics in Algebra

Lecture, three hours. Not offered every year.

121A Group Theory (4) F

This course serves as an introduction to abstract algebra. Groups, subgroups, quotient groups, permutation groups, Sylow theorems, etc. Prerequisite: Mathematics 13 is recommended.

121B Ring Theory (4) W

Rings, subrings, quotient rings, ideals, integral domains, polynomial rings, etc. Prerequisite: Mathematics 121A or consent of instructor.

121C Field Theory (4) S

A study of fields and the elements of Galois theory in characteristic zero. Applications to geometry and arithmetic. Prerequisites: Mathematics 120B and 121B, or consent of instructor.

122A-B-C Elementary Number Theory (4-4-4) F, W, S

Lecture, three hours. Primes, congruences, diophantine equations, quadratic reciprocity, and selected other topics. Prerequisite: one year of college mathematics. Not offered every year.

129A-B-C Mathematical Theory of Sample Surveys (4-4-4) F, W, S

Lecture, three hours; laboratory, two hours. Basic concepts of probability, sample selection, stratification, cluster sampling, double-sampling procedures. Nonsampling errors and other developments. Applications to problems in economics, business, public health, agriculture, and the social sciences. Prerequisites: Mathematics 2A-B-C.

130A-B-C Probability and Stochastic Processes (4-4-4) F, W, S

Lecture, three hours. An introductory course emphasizing applications. Discrete and continuous probability distributions. Distributions of sums and limit theorems. Markov chains and stochastic processes. Prerequisites: Mathematics 2A-B-C.

131A-B-C Mathematical Statistics (4-4-4) F, W, S

Lecture, three hours. An introduction to probability and mathematical statistics. Probability distributions. Expectation. Point estimation and confidence intervals. Fundamental theory of hypothesis testing. Applications. Prerequisites: Mathematics 2A-B-C.

132A-B-C Second Course in Mathematical Statistics (4-4-4) F, W, S

Lecture, three hours; laboratory, two hours. A continuation of Mathematics 131A-B-C devoted to both theoretical and applied statistics. Review of sampling distributions. Interval estimation. Sequential analysis. Analysis of variance. Regression and correlation. Analysis of covariance. Nonparametric inference. The laboratory consists of two one-hour computing sessions per week devoted to applied problems in physical, social, and biological sciences. Prerequisites: Mathematics 131A-B-C or consent of the instructor. Also strongly recommended is Mathematics 3A-B.

133A-B Applied Probability Theory (4-4) W, S

Markov chains, exponential distribution and Poisson processes, exponential models and continuous-time Markov chains, renewal theory, reliability. Not offered every year.

140A-B-C Elementary Analysis (4-4-4) F, W, S

Lecture, three hours. An introduction to real analysis, including the real number system, infinite series, sequences of functions, differentiation, integration, and elements of the calculus of scalar- and vector-valued functions of several variables. Prerequisites: Mathematics 3A-B-C.

141A-B Introduction to Topology

Lecture, three hours. Mathematics 141A-B strongly recommended for students planning to take graduate courses in mathematics.

141A Metric Spaces (4) F

The elements of naive set theory and the basic properties of metric spaces. Corequisite: Mathematics 140A.

141B Point Set Topology (4) W

Introduction to topological spaces and topological properties. Prerequisite: Mathematics 141A or consent of instructor.

142A-B-C Differential Equations (4-4-4) F, W, S

Theoretical aspects of ordinary and partial differential equations are emphasized, e.g., existence and uniqueness of solutions. The first quarter is devoted to ordinary differential equations; the last two quarters to partial differential equations and related topics. Prerequisites: Mathematics 3A-B-C or consent of instructor. Not offered every year.

143A-B-C Methods of Mathematical Physics (4-4-4) F, W, S

Same as Physics 110A-B-C. Lecture, three hours. An introduction to applied mathematics, especially differential equations, for students in the physical sciences and engineering. The first quarter is concerned with ordinary differential equations; methods of solution, applications, existence, uniqueness and stability, linear equations with constant and variable coefficients, and the Laplace transform. Topics from series expansions, complex analysis, Fourier series, and introductory partial differential equations will be covered in the second quarter. The third quarter is devoted to partial differential equations and their applications. Prerequisites: Mathematics 3A-B-C or consent of instructor.

144A-B Introduction to Complex Variables (4-4) W, S

Lecture, three hours. An introductory course emphasizing applications. Complex numbers, analytic functions. Riemann mapping theorem with applications to boundary value problems. Theory of residues, power series expansions. Prerequisites: Mathematics 3A-B-C.

145A-B-C Topics in Analysis (4-4-4) F, W, S

Lecture, three hours. This course will provide a second year in analysis for mathematicians, physical scientists, and engineers. Prerequisites: Mathematics 140A-B-C or consent of instructor. Not offered every year.

147A-B Calculus on Manifolds (4-4) W, S

Lecture, three hours. Theory of differentiation and integration in euclidean space and its generalization to manifolds. The inverse and implicit function theorems, differential forms, Stokes' theorem. Prerequisites: Mathematics 120A, 140C, and 141A, or consent of instructor. Not offered every year.

150 Set Theory (4) F

Lecture, three hours. Axiomatic development of set theory; axiom of choice and equivalents; cardinals and ordinals. Prerequisite: consent of instructor. Not offered every year.

155A-B Recursion Theory and Logic (4-4) W, S

Lecture, three hours. Effective procedures; propositional and predicate calculus; completeness theorems, recursive functions; incompleteness and undecidability. Prerequisite: consent of instructor. Not offered every year.

162A-B Introduction to Differential Geometry (4-4) W, S

Lecture, three hours. Applications of advanced calculus and linear algebra to the geometry of curves and surfaces in space. Prerequisites: Mathematics 140A-B-C. Not offered every year.

163 Covering Spaces and the Fundamental Group (4) S

Lecture, three hours. This course is intended as an introduction to algebraic topology. The fundamental group of a topological space, Van Kampen's theorem, covering spaces and their relations with the fundamental group. Prerequisite: Mathematics 141B and some familiarity with group theory, or consent of instructor. Not offered every year.

171A-B-C Mathematical Methods in Operations Research

Lecture, three hours; discussion, one hour. Prerequisite: consent of instructor. Not offered every year.

171A Linear Programming (4) F

Simplex algorithm, duality, optimization in networks.

171B Nonlinear Programming (4) W

Conditions for optimality, quadratic and convex programming, geometric programming, search methods.

171C Integer and Dynamic Programming (4) S

Multistage decision models, applications.

191A-B-C Introduction to the Theory of Games with Applications (4-4-4) F, W, S

Lecture, three hours. The classical von Neumann theory of finite two and n-person games. The theory may be applied to specific games such as chess, poker, Go, and blackjack and to economic behavior including the securities markets. Prerequisites: Mathematics 140A-B-C or consent of instructor. Not offered every year.

192 Tutoring in Mathematics (1 to 4 per quarter) F, W, S

Students may enroll in a section of this course to earn course credit for tutoring associated with the Physical Sciences Peer Tutoring Program or for activities as a student assistant in conjunction with some specific mathematics course. Admission to the course will depend upon demonstration of suitable qualifications and approval of the instructor in charge. Students may take the course for P/NP credit only; the number of units per term (1 to 4) will be determined by the specific activities involved. Prerequisite: consent of the Department. Note: This course satisfies no degree requirements other than contribution to the 180 units required for graduation. No more than 8 units earned in tutoring courses may be counted toward the required total of 180.

199A-B-C Special Studies in Mathematics (4-4-4) F, W, S
Supervised reading. For outstanding undergraduate mathematics majors in supervised but independent reading or research of mathematical topics of current interest. Prerequisite: Department approval.

GRADUATE COURSES

210A-B-C Real Analysis (4-4-4) F, W, S

Lecture, three hours. Measure theory, Lebesgue integral, L_p spaces. Radon-Nikodym theorem, differentiation, metric spaces, Banach spaces, Daniell integral. Prerequisites: Mathematics 141A-B, or equivalent of these, or consent of instructor.

211A-B-C Topics in Real Analysis (4-4-4)

Lecture, three hours. A continuation of Mathematics 210A-B-C; topics selected by the instructor. Not offered every year.

220A-B-C Analytic Function Theory (4-4-4) F, W, S

Lecture, three hours. Standard theorems about analytic functions. Harmonic functions. Normal families. Conformal mapping. Prerequisites: Mathematics 140A-B-C, 141A-B, or equivalent of these, or consent of instructor.

221A-B Several Complex Variables (4-4)

Lecture, three hours. Holomorphy domains, plurisubharmonic functions. Holomorphy envelopes, integral representations. Applications in partial differential equations and quantum field theory. Prerequisites: Mathematics 220A-B-C, or equivalent, or consent of instructor. Not offered every year.

230A-B-C Algebra (4-4-4) F, W, S

Lecture, three hours. Elements of the theories of groups, rings, fields, modules, Galois theory. Modules over principal ideal domains. Artinian, Noetherian, and semisimple rings and modules. Prerequisites: Mathematics 120A-B-C, 121A-B-C, or equivalent, or consent of instructor.

Courses numbered 234 through 295 are not offered every year. In addition to the courses listed below, which are presented on a rotating schedule, other courses are offered as interest and demand dictate.

234A-B-C Topics in Algebra (4-4-4)

Lecture, three hours. Group theory, homological algebra, and other selected topics. Prerequisites: Mathematics 230A-B-C or consent of instructor.

235A-B-C Algebraic Geometry (4-4-4)

Lecture, three hours. Introduction to algebraic varieties and schemes. Dimension theory, cohomology, flatness, GAGA type theorems, deformation theory, examples. Prerequisites: Mathematics 220A-B-C and Mathematics 230A-B-C or consent of instructor.

237A-B-C Algebraic Number Theory (4-4-4)

Lecture, three hours. Modules over Dedekind domains, finiteness of class number and Dirichlet unit theorem, decomposition of prime ideals in cyclotomic fields and quadratic reciprocity, zeta

functions and Dirichlet's theorem on primes in an arithmetic progression. Class field theory, reciprocity laws. Arithmetic theory, diophantine equations. Prerequisites: linear algebra and Galois theory.

240A-B-C Differential Geometry (4-4-4)

Lecture, three hours. Differential manifolds, differential forms, integrations, introduction to Lie groups, connections, Riemannian manifolds, curvature and topology, calculus of variations in the large, immersions and imbeddings. Prerequisites: Mathematics 141A-B and 147A-B or consent of instructor.

241A-B-C Topics in Lie Groups and Lie Algebras (4-4-4)

Lecture, three hours. Introduction to Lie theory with emphasis on the structure of semisimple matrix groups and their representations. Prerequisites: linear algebra, point set topology, and basic analysis.

250A-B-C Algebraic Topology (4-4-4)

Lecture, three hours. Topics covered will vary with instructor. Prerequisites: Mathematics 121A-B-C and 141A-B, or equivalent, or consent of instructor.

260A-B-C Functional Analysis (4-4-4)

Lecture, three hours. Elements of Banach space theory, operator theory, Banach algebra theory including structure theory of commutative algebras and spectral theory in Hilbert space. Prerequisites: Mathematics 210A-B-C and 220A-B-C or consent of instructor.

261A-B-C Operator Theory (4-4-4)

Lecture, three hours. Elements of topological linear spaces, Hilbert spaces, spectral theorems and multiplicity theory, rings of operators, representation of groups and rings. Prerequisites: Mathematics 210A-B-C or consent of instructor.

270A-B-C Probability (4-4-4)

Lecture, three hours. Probability spaces, distribution and characteristic functions. Strong limit theorems. Limit distributions for sums of independent random variables. Conditional expectation and martingale theory. Stochastic processes. Prerequisites: Mathematics 130A-B-C and 210A-B-C or consent of instructor.

271A-B-C Stochastic Processes (4-4-4)

Lecture, three hours. Processes with independent increments, Wiener and Gaussian processes, function space integrals, stationary processes, Markov processes. Prerequisites: Mathematics 210A-B-C or consent of instructor.

272A-B-C Integration in Function Spaces (4-4-4)

Lecture, three hours. Brownian motion, Wiener integral, Feynman integral. Applications to partial differential equations. Gaussian processes, integration on Hilbert space. Generalized stochastic process. Prerequisites: Mathematics 271A-B-C or consent of instructor.

295A-B-C Partial Differential Equations (4-4-4)

Lecture, three hours. Local and global theory of partial differential equations: analytic, geometric, and functional analytic

methods. Prerequisites: Mathematics 210A-B-C, or equivalent, or consent of instructor.

297A-B-C Colloquium (1-1-1) F, W, S

Weekly colloquia on topics of current interest in mathematics.

Prerequisite: graduate standing.

298A-B-C Seminar (1 to 3) F, W, S

Seminars organized for detailed discussion of research problems of current interest in the Department. The format, content, frequency, and course value are variable. Prerequisite: consent-of the Department.

299A-B-C Supervised Reading and Research (4-4-4) F, W, S

Department of Physics

UNDERGRADUATE PROGRAM

Courses in the Physics Department are designed to meet the needs of many kinds of students, from those students without facility in mathematics whose main interests lie in the humanities or the arts to those students with professional goals in science and engineering. The three lower-division sequences in physics are distinguished by their intended audience, their mathematical prerequisites, and the extent to which they offer preparation for more advanced courses. These aspects of the beginning courses are summarized in the following table:

Physics 3	Physics 5	Physics 10-20
	Intended Audience	
Premedical students, Biological Sciences majors	Physics, Chemistry, and Engineering majors	Nonscience majors
	Mathematical Prerequisites	
Algebra and trigonometry; concurrent enrollment in Math 2 (Calculus)	Math 2A (Calculus); knowledge of computer programming is recommended	None
	Preparation for Advanced Courses	
Physics 5C with permission	All upper-division courses in physics	None

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements: See page 160.

Departmental Requirements

Physics 5A-B-C-D-E with laboratory; six quarter Physics courses numbered between 111 and 149; two quarters of advanced laboratory (Physics 151-153); Mathematics 2A-B-C (or H2A-B-C); Mathematics 3A-B-C (or H3A-B-C); three courses from Mathematics 140A-B-C, 142A-B-C, 144A-B, or Physics 110A-B-C with Physics 110A-B-C particularly recommended; and three additional upper-division courses chosen from the Schools of Physical Sciences, Biological Sciences, Engineering, or the Department of Information and Computer Science. Alternative requirements will be developed for students with special interests.

Planning a Program of Study

Physics 3 is a one-year course suitable for premedical students, students majoring in Biological Sciences, and non-science majors. It surveys most of the important branches of physics with strong orientation toward modern physics. Laboratory work accompanies the course. Nonscience majors with some mathematical skill may wish to consider Physics 3 as an alternative to Physics 10-20.

A student who decides to major in Physics after completing Physics 3 with a grade of A or B may, with the consent of the Department, enroll in Physics 5C. The premedical physics requirement may be met with Physics 3 or with Physics 5A-B-C.

Physics 5 is an intensive five-quarter course for physics, chemistry, engineering, and other students interested in a careful quantitative approach to the subject. Laboratory work accompanies the course. Students expecting to enroll in the entire five-quarter sequence of Physics 5 should enroll in Mathematics 3A concurrently with Physics 5C. Students planning to enroll in only three quarters of Physics 5 need not enroll in Mathematics 3A. The recommended knowledge of computer programming may be gained by enrolling in Information and Computer Science 1, usually in the fall quarter of the freshman year, or in Physics 1. Biological Sciences majors with facility in calculus should consider Physics 5 as an alternative to Physics 3.

Physics courses numbered between 10 and 20 are one-quarter general education courses intended for nonscience majors. The content and format of these courses will vary from year to year. In general, these courses will not include regular laboratory work.

Courses numbered 110 and above are for physics majors and other qualified students. This series of courses in the upper-division curriculum is sufficiently broad to provide programs both for the physics major who does not intend to pursue the study of physics beyond the Bachelor's degree level and for the physics major preparing for a professional career in physics. The physics major with a career goal in medicine, law, teaching, or business, for example, should emphasize the Physics 130 series, which covers most of the important phenomena of physics. The physics major preparing for graduate work in physics should cover most of the Physics 110 series. Any major who is so inclined can take more than the minimum two quarters of advanced laboratory work. Able students may begin the Physics 111 series in their sophomore year.

Courses numbered between 110 and 116 emphasize the mathematical and theoretical structures that have unified our understanding of nature. Those numbered between 130 and 149 emphasize particular domains of the structure of matter. Laboratory work is assigned to separate courses, 151-153.

Transfer students are specifically advised to seek individual consultation with a member of the Physics faculty before deciding on a program of courses.

Since many graduate physics departments require a reading knowledge of one foreign language, physics majors planning graduate work should, if possible, study some Russian, German, or French. Introductory courses in biology and chemistry are also recommended options. Every physics major should avoid overspecialization and wisely use undergraduate years to explore some areas remote from physics.

Sample Programs

A typical course program for physics majors considering the possibility of graduate study in physics or astronomy is shown below. Three of the electives in the senior year may be physics graduate courses. A student with a weak background may want to postpone Physics 113A-B until the senior year.

Fall	Winter	Spring
Freshman		
Math 2A	Math 2B	Math 2C
Chem. 1	Chem. 2	Chem. 3
ICS 1 or Physics 1	Physics 5A	Physics 5B
Elective	Elective	Elective
Sophomore		
Math 3A	Math 3B	Math 3C
Physics 5C	Physics 5D	Physics 5E
Elective	Elective	Elective
Elective	Elective	Elective
Junior		
Physics 110A	Physics 110B	Physics 110C
Physics 111A	Physics 111B	Physics 112A
Physics 113A	Physics 113B	Physics Elective
Elective	Elective	Elective
Senior		
Elective	Math 144A	Math 144B
Physics 151	Physics Elective	Physics 153
Physics 112B	Physics 115*	Physics 116
Elective	Elective	Elective

Physics majors with interests other than graduate work in physics or astronomy need not take as many physics courses as indicated above. As a guide to preparing a more suitable program, the Department makes the following suggestions.

The course program of physics majors considering the possibility of graduate school in engineering should contain at least the following courses:

Physics 111A-B, 112A-B, and three to six engineering courses.

The course program of physics majors considering graduate work in chemistry, biology, or various interdisciplinary areas should contain:

Physics 111A, 112A-B, 113A-B, and 115; Chemistry 4, 5, 6; and Biological Sciences 101A-B-C.

The course program of physics majors considering a teaching career in the public schools or the community colleges should contain at least:

Physics 111A, 112A-B, and 113A-B; Education 171 and

*To be offered fall quarter, 1977.

170, 172, or 175; and additional preparation in some area of science or mathematics. Courses from the Physics 10-20 sequence may be appropriate.

The course program of physics majors considering graduate work in the history of science should contain:

Physics 111A-B, 112A-B, and 113A-B; History 29A-B-C, 133E, 180B. Courses from the Physics 10-20 sequence may be appropriate.

GRADUATE PROGRAM

The Department offers the M.A. and the Ph.D. degrees in Physics, the first in recognition of demonstrated knowledge of the basic facts and theories of physics, the second primarily in recognition of demonstrated capacity for independent research.

All new graduate students take a placement examination shortly before the beginning of the fall quarter. This examination serves only to help the student and advisor decide on the best program of study.

Complementing the formal courses, the Department offers regular colloquia and informal seminars. The graduate student is a member of an intellectual community and is expected to participate fully in these departmental activities. In addition to the regular research seminars in solid state, high energy, and plasma physics, a teaching seminar meets once each week for the purpose of exploring techniques of instruction and improving graduate student teaching performance. This seminar introduces Teaching Assistants to the instructional program of this and related departments and gives students an opportunity by means of video-tape to observe and criticize their own teaching methods.

About 60 graduate students of physics were enrolled in 1976-77. Active programs of research are underway in high-energy physics, solid state physics, low temperature physics, plasma physics, mathematical physics, and astrophysics.

Sources of support available to graduate students include teaching assistantships, research assistantships, fellowships, and traineeships.

Students planning to pursue graduate work in physics should obtain a copy of the booklet *Physics* from the Physics Department.

Master of Arts in Physics

The requirements for the M.A. degree are: (1) at least three quarters of residence; and (2) mastery of graduate course

material, which may be demonstrated either (2a) by passing, with an average grade of B or better, a *minimum* of nine graduate courses numbered between 200 and 259 and a written comprehensive examination, or (2b) by passing the Ph.D. qualifying examination. Under special circumstances, a research project and thesis may be accepted in lieu of proficiency in some of the graduate course material. There is no foreign language requirement for the M.A. degree.

A typical program in preparation for the written examination for the M.A. degree would consist of twelve courses:

211A (Class. Mech.)	215A-B (Quant. Mech.)
212A-B (Math. Phys.)	Three electives chosen from
213A-B (Elec. Th.)	217A-B-C and 218A-B-C
214A-B (Stat. Phys.)	sequences, or undergraduate upper-division courses.

Doctor of Philosophy in Physics

The principal requirements for the Ph.D. degree are a minimum of six quarters of residence, passage of a written and an oral examination, and successful completion and defense of a dissertation reporting results of original research. In addition, the Ph.D. candidate must complete moderate graduate course requirements. There is no foreign language requirement for the Ph.D. degree.

Course Requirements. The student is required to exhibit mastery of the basic sequences, Mathematical Physics, Classical Mechanics and Electromagnetic Theory, Quantum Mechanics, Relativistic Quantum Mechanics, and Statistical Mechanics. In addition, nine graduate-level quarter courses, other than the basic sequences, and numbered less than 259, are required. These courses must be passed with an average grade of B or better.

Qualifying Examination. For advancement to Ph.D. candidacy, a student must pass a qualifying examination consisting of a written part and two oral parts. The written part covers a broad range of fundamentals of physics at the advanced undergraduate and graduate levels. The first part of the oral exam will be administered shortly after the written examination. All members of the first oral committee will be faculty from the Physics Department. The second part of the oral examination will be taken approximately one year after successful completion of the written exam and the first oral. The candidacy committee that administers the second oral examination will contain one or two faculty members from outside the Physics Department. The second

oral will cover principally material related to the broad and general features of the student's thesis area. The written portion of the qualifying examination will generally be given twice each year, once in September just prior to the start of classes, and again in May. The examination may be taken by some students after one year of graduate study. A second attempt will be permitted if the first is not successful. A third attempt will be permitted only in extraordinary circumstances.

Dissertation. A dissertation summarizing the results of original research performed by the student under the supervision of a doctoral committee appointed by the Graduate Council will be required for the Ph.D. degree. The criterion for the acceptability of a dissertation by the Department is that it be suitable for publication in a scientific journal. The dissertation must not have been submitted to any other institution prior to its submission to the Physics Department at UCI.

Defense of Dissertation. Upon completion of the dissertation, the student will take an oral examination, open to the public, before the doctoral committee.

Suggested Course Sequences. Typical programs for the first two years designed to prepare the student for Ph.D. qualification and provide the foundation necessary for understanding and participating in modern research might include:

First Year: 211A (Classical Mechanics); 212A-B-C (Mathematical Physics); 213A-B (Electromagnetic Theory); 215A-B (Quantum Mechanics); 215C (Relativistic Quantum Mechanics).

In the second year of graduate study, the student may begin to take courses that will provide a broad background for the thesis area. The following sequences represent a typical second-year program:

For the student with an interest in solid state physics:

211B (Elasticity); 211C (Hydrodynamics); 214A-B (Statistical Physics); 214C (Many Body Theory); 235A (Advanced Quantum Mechanics); 232A-B (Group Theory); 218A-B-C (Plasma Physics, Low Temperature Physics, Solids).

For the student with an interest in elementary particle physics:

235A-B (Advanced Quantum Mechanics); 232B (Group Theory); 217A-B-C (Elementary Particle Physics, Nuclei,

Astrophysics); 214A-B (Statistical Physics); 214C (Many Body Theory) or 218C (Solids).

For the student with an interest in plasma physics:

211B (Elasticity); 211C (Hydrodynamics); 214A-B (Statistical Physics); 214C (Many Body Theory); 217A-B-C (Elementary Particle Physics, Nuclei, Astrophysics); 218A-C (Plasma Physics, Solids); Elective.

PHYSICS FACULTY

Norman Rostoker, D.Sc. Carnegie Institute of Technology,
Professor of Physics and Chairman of the Department

Myron Bander, Ph.D. Columbia University, *Professor of Physics and Vice Chairman of the Department*

Gregory A. Benford, Ph.D. University of California, San Diego, *Associate Professor of Physics*

Alfred M. Bork, Ph.D. Brown University, *Professor of Physics and Information and Computer Science and Vice Chairman of the Department*

Herbert H. Chen, Ph.D. Princeton University, *Associate Professor of Physics*

Paul E. Condon, Ph.D. Princeton University, *Professor of Physics*

Jon M. Lawrence, Ph.D. University of Rochester, *Assistant Professor of Physics*

Mark A. Mandelkern, Ph.D. University of California, Berkeley, M.D. University of Miami, *Associate Professor of Physics and Pathology*

Alexei A. Maradudin, Ph.D. University of Bristol, *Professor of Physics and Dean of the Graduate Division*

Meinhard E. Mayer, Ph.D. Parhon University (Rumania), *Professor of Physics (on leave)*

Douglas L. Mills, Ph.D. University of California, Berkeley, *Professor of Physics*

Riley Newman, Ph.D. University of California, Berkeley, *Associate Professor of Physics*

William H. Parker, Ph.D. University of Pennsylvania, *Professor of Physics and Assistant Vice Chancellor - Academic Affairs for Plans and Programs*

John R. Pellam, Ph.D. Massachusetts Institute of Technology, *Professor of Physics*

Franklin Potter, Ph.D. Texas Tech University, *Lecturer in Physics*

John D. Rather, Ph.D. University of California, Berkeley, *Lecturer in Physics*

Frederick Reines, Ph.D. New York University, *Professor of Physics and Radiological Sciences*

- Nathan Rynn, Ph.D. Stanford University, *Professor of Physics*
 Jonas Schultz, Ph.D. Columbia University, *Professor of Physics*
 Gordon L. Shaw, Ph.D. Cornell University, *Professor of Physics*
 Dennis J. Silverman, Ph.D. Stanford University, *Associate Professor of Physics*
 Virginia L. Trimble, Ph.D. California Institute of Technology, *Associate Professor of Physics*
 Sukekatsu Ushioda, Ph.D. University of Pennsylvania, *Associate Professor of Physics*
 Gerard Van Hoven, Ph.D. Stanford University, *Associate Professor of Physics*
 Richard F. Wallis, Ph.D. Catholic University of America, *Professor of Physics*
 Joseph Weber, Ph.D. Catholic University of America, *Visiting Professor of Physics*

LOWER-DIVISION COURSES

1 Introduction to Physics (4) F

Lecture, three hours. An introduction to and overview of physics. Introduction to computing for the scientist and engineer. Mathematical review and introduction to calculus. Analysis of experimental data. Physical units.

3A-B-C Basic Physics (4-4-4) F, W, S

Lecture, three hours; discussion, one hour. Fall: Survey of physical theory; Newtonian mechanics. Winter: Electricity and magnetism; radiation and waves; optics; heat phenomena. Spring: Twentieth-century physics; relativity; quantum ideas; atomic and nuclear physics. Concurrent enrollment in Physics 3L is required each quarter (laboratory requirement may be waived by consent of instructor). Prerequisites: Mathematics 2A-B-C (prior or concurrent).

3LA-B-C Basic Physics Laboratory (1-1-1) F, W, S

Laboratory accompanying Physics 3, three hours.

5A-B-C-D-E Fundamental Physics (4-4-4-4-4) W, S, F, W, S

Lecture, three hours; discussion, one hour. Winter: Newtonian mechanics; facility in calculus is assumed; knowledge of computer programming is recommended. (Corequisite: Mathematics 2B.) Spring: Wave phenomena; relativity. (Corequisite: Mathematics 2C.) Fall: Electrostatics; magnetostatics; currents and fields; circuit elements; Maxwell's equations. (Prerequisites: Mathematics 2A-B-C.) Winter: Quantum theory; atoms and nuclei. (Corequisite: Mathematics 3B.) Spring: Statistical physics; thermal phenomena. (Prerequisite: Physics 5D.) Concurrent enrollment in Physics 5L is required each quarter (laboratory requirement may be waived by consent of instructor).

5LA-B-C-D-E Fundamental Physics Laboratory (1-1-1-1-1) W, S, F, W, S

Laboratory accompanying Physics 5, three hours.

Courses for Nonmajors

Courses numbered between 10 and 20 are especially designed for students majoring in programs other than the physical sciences.

10 The Sense of Sound (4) S

Lecture, three hours. The production, propagation, and reception of sound and an introduction to its connection with music and speech. Occasional lecture demonstrations and student projects.

11 Super-Cold (4) S

Lecture, three hours. Lecture and demonstrations on superfluidity, superconductivity, and other phenomena near the absolute zero of temperature.

12 Newton! (4) S

Lecture, three hours. Origins of modern science in Newton's pioneering work in mechanics. Emphasis on historical, philosophical, and sociological developments. Directed toward students in humanities, social sciences, and fine arts. High school geometry required.

14 Physics for the Artist (4)

Lecture, three hours. Physical phenomena through demonstrations, discussion, and individual experimentation. Laboratory-studio investigations of techniques for producing motion, light imagery, and physical interaction with the observer. Students must be willing and able to produce experimental works of art. Not offered 1977-78.

15 Cosmology – Man's Place in the Universe (4) W

Lecture, three hours. The overall structure of the universe and its changes in time; the evolution of galaxies, stars, and planets; the conditions necessary for life and possibilities for extra-terrestrial intelligent life.

16 Rainbows and Things (4)

Lecture, three hours. A variety of natural phenomena, some common, some less obvious, which have intrigued man for centuries. Among the subjects: rainbows, the setting sun, the planets, and the nucleus of atoms. Not offered 1977-78.

17 Physics through Science Fiction (4)

Lecture, three hours. Contemporary works of science fiction used to stimulate consideration of physics in many oft-used ideas about man's future. Cosmology, relativity, planetary physics, and speculative ideas such as time travel and teleportation. High school physics or consent of instructor required. Not offered 1977-78.

20 Observational Astronomy (4) F, S

Lecture, two hours; laboratory, two hours. Motions of planets and stars in the sky. Use of telescopes and location of prominent astronomical objects.

UPPER-DIVISION COURSES

110A-B-C Methods of Mathematical Physics (4-4-4) F, W, S

Lecture, three hours; discussion, one hour. Same as Mathematics 143A-B-C. This course provides the mathematical tools for upper-division physics courses. Topics to be treated include ordinary and partial differential equations, special functions, boundary value problems. Fourier and Laplace transforms, linear algebra and tensor analysis, and complex functions. Application of mathematical methods to physical problems will be stressed. Prerequisites: Mathematics 3A-B-C or equivalent.

111A-B Classical Mechanics (4-4) F, W

Lecture, three hours; discussion, one hour. Mechanics of particles through Lagrangian and Hamiltonian methods; rigid bodies; relativity; coupled systems. Prerequisite: Physics 5D or consent of instructor.

112A-B Electromagnetic Theory (4-4) 112A (S), 112B (F)

Lecture, three hours; discussion, one hour. Electrostatics; magnetostatics; properties of matter; Maxwell's equations; relativity; radiation; optics. Prerequisite: Physics 5C; prior or concurrent enrollment in Mathematics 3B.

113A-B Quantum Mechanics (4-4) F, W

Lecture, three hours; discussion, one hour. Inadequacy of classical physics; time independent and time dependent Schrödinger equation; systems in one, two, and three dimensions; matrices; Hermitian operators; symmetries; angular momentum; perturbation theory; scattering theory; applications to atomic structure.

115 Statistical Physics (4) F

Lecture, three hours. Microscopic theory of temperature, heat, and entropy; kinetic theory; multicomponent systems; quantum statistics. Prerequisites: Physics 5E, Mathematics 3C. Usually offered during winter quarter.

116 Thermodynamics (4) S

Lecture, three hours. Microscopic theory of temperature, heat, and entropy; mathematical relationships of thermodynamics; heat engines; phase transitions. Prerequisites: Physics 5E, Mathematics 3C.

132 Nuclear Physics (4) S

Lecture, three hours. Nucleons and nuclear structure; radioactivity; neutron-proton scattering; the deuteron; nuclear reactions. Prerequisite: Physics 113A.

133 Solid State Physics (4) S

Lecture, three hours. Phenomena of solids and their interpretation in terms of quantum theory. Prerequisites: Physics 5D-E.

134 Modern Optics (4) W

Lecture, three hours. Interaction of radiation with matter; lasers; nonlinear optics; optical properties of solids; absorption and scattering of light; modern spectroscopic techniques. Prerequisites: Physics 112B and 113A.

136 Elementary Particles (4)

Lecture, three hours. Experimental techniques and theoretical

concepts of high-energy phenomena: accelerators and detectors; classification of particles and interactions of particle properties; symmetries and mass multiplets; production and decay mechanisms. Prerequisite: Physics 113A. Not offered 1977-78.

144A Astrophysics: Stellar Structure and Evolution (4)

Lecture, three hours. Stars: their structure and evolution; physical state of the interior; the Hertzsprung-Russell classification; star formation; nuclear burning; giant and dwarf stars. Not offered 1977-78.

144B Astrophysics: Spectroscopy (4)

Lecture, three hours. Stellar spectra: observational and theoretical aspects. Radiative transfer and formation of spectral lines. Temperature, density, and composition of stars. Sunspots and solar activity. Spectra of nebulae and other dilute gases. Prerequisite: Physics 5E or consent of the instructor. Not offered 1977-78.

145 High Energy Astrophysics (4) W

Lecture, three hours. Production of radiation by high energy particles. Evolution of galactic nuclei, radio galaxies, quasars, and pulsars. Cosmic rays and the cosmic background radiation. Prerequisite: Physics 5E or consent of the instructor.

146 Galaxies and Cosmology (4)

Lecture, three hours. Structure and evolution of galaxies. General relativistic models of the universe. Observational tests of cosmological models. Early phases of the universe. Unconventional cosmologies. Not offered 1977-78.

150 Electronics (4) F

Lecture, two hours; laboratory, four hours. Applications of modern semiconductor devices to physical instrumentation. Characteristics of semiconductor devices, integrated circuits, analog and digital circuits. Prerequisite: Physics 5E or consent of instructor.

151, 152, 153 Advanced Laboratory I, II, III (4-4-4) F, W, S

Lecture, one hour; laboratory, eight hours. Experiments in atomic, nuclear, and solid state physics. Zeeman effect, electron spin resonance, nuclear magnetic resonance, optical spectroscopy, and x-ray diffraction. Prerequisites: Physics 5D-E or consent of instructor. Physics 113A-B and 132 recommended.

160 Group Theory for Physical Sciences Students (4)

Lecture, three hours. Abstract group theory and group representations. Emphasis will be on the application of symmetry principles to understand various physical phenomena taken from mechanics, atomic spectroscopy, solid state and molecular physics. Not offered 1977-78.

187A-B Medical Physics (4-4)

A survey of current applications of physics to medicine: radiotherapy, nuclear medicine, ultrasound, cryogenics, thermography, lasers, electronic techniques, etc. Both basic fundamentals and applications will be studied. Intended primarily for premedical and science students. Prerequisite: Physics 3 or 5 series, or consent of the instructor. Not offered 1977-78.

187LB Medical Physics Laboratory (1)

Optional laboratory accompanying Physics 187. Experiments illustrating fundamentals of medical physics. Also includes field trips to local hospitals to observe and possibly participate in patient treatment. Not offered 1977-78.

195 Undergraduate Research (4)

Open to seniors and occasionally to juniors with consent of Department.

199 Readings on Special Topics (4)

With consent of Department.

GRADUATE COURSES**211A Classical Mechanics (4) F**

Lecture, three hours. Variational principles, Lagrange's equations; applications to two body problems, small oscillation theory, and other phenomena. Hamilton's equation. Hamilton-Jacobi theory.

211B Elasticity (4) W

Lecture, three hours. Analysis of strain and stress; elasticity of crystals; equilibrium of isotropic elastic solids and of half-spaces; bending of rods and plates; two-dimensional elastic systems; propagation of waves in elastic solid media; surface waves; piezoelectric solids; dislocations; thermoelasticity.

211C Hydrodynamics (4) S

Lecture, three hours. Hydrodynamics of a perfect fluid; two-dimensional problems; motion of an incompressible viscous fluid; Navier-Stokes equations; viscous fluids in rotation; motion in three dimensions; introduction to motion of a compressible fluid.

212A-B-C Mathematical Physics (4-4-4) F, W, S

Lecture, three hours. Ordinary differential and partial differential equations; complex variables and special functions; matrices, eigenvalues and eigenvectors; numerical methods; perturbation theory; integral equations; calculus of variations, elements of group theory.

213A-B Electromagnetic Theory (4-4) W, S

Lecture, three hours. Electrostatics; magnetostatics; relativity; classical electron theory; fields in vacuum and matter; retardation; radiation and absorption; dispersion; propagation of light; diffraction; geometric optics; theories of the electric and magnetic properties of materials; scattering.

214A-B Statistical Physics (4-4) F, W

Lecture, three hours. Maxwell-Boltzmann, Bose-Einstein, and Fermi-Dirac statistics; ensemble theory, ideal and imperfect gases; thermodynamic properties of solids; cooperative phenomena; phase transitions of first and second order; fluctuations.

214C Many Body Theory (4)

Lecture, three hours. The Green's function approach to the theory of many body systems at finite temperatures will be discussed. The techniques of diagrammatic perturbation theory will

be introduced and applied to a few specific problems to illustrate the methods. Not offered 1977-78.

215A-B-C Quantum Mechanics (4-4-4) F, W, S

Lecture, three hours. Foundations of quantum theory; Dirac notation, basic operators and their eigenstates; perturbation theory; variational method; spin; Clebsch-Gordon coefficients; structure of atomic systems; scattering theory; formal collision theory; semi-classical radiation theory; quantization of the electromagnetic field; relativistic quantum mechanics; second quantization of many body systems.

217A Particles (4) F

Lecture, three hours. An advanced survey of high energy phenomenology. Elementary particle quantum numbers, isotopic and unitary spin multiplets, symmetries (e.g., parity, charge conjugation, and time reversal), S-matrix, production and decay mechanisms, and current trends in theory.

217B Nuclei (4) W

Lecture, three hours. Topics will be selected from: the two-body problem, low energy nucleon-nucleon scattering, structure of light nuclei, nuclear reactions and resonances, models of complex nuclei, theories of the fission process, nuclear shapes and deformations, and alpha, beta, and gamma emission processes.

217C Astrophysics (4) W

Lecture, three hours. Stellar structure and evolution; formation of the elements; supernova; pulsars; quasars; origin of cosmic rays.

218A Plasma Physics (4) S

Lecture, three hours. Orbit theory, hydromagnetics, plasma waves, applications to astrophysics and controlled fusion.

218B Low Temperature Physics (4) W

Lecture, three hours. Possible topics include: properties of superfluid helium, and phenomenological theories of superfluid helium, phenomenology of the superconduction state, discussion of experimental methods in low temperature physics.

218C Solids (4) F

Lecture, three hours. Possible topics include: crystal properties, lattice dynamics of solids, electronic band structure of solids, theories of metals and semiconductors, magnetism and superconductivity, with special emphasis on elementary excitation in solids.

232A-B Applications of Group Theory (4-4) F, W

Lecture, three hours. The role of symmetry in physical problems. First quarter, finite groups; second quarter, continuous groups. 232B can be taken without 232A. Abstract group theory and theory of group representations. Perturbation theory, selection rules, crystal tensors, molecular vibrations, Jahn-Teller theorem, directed valence, time reversal symmetry, double groups, crystal field splittings of atomic levels. Continuous groups and particle physics. Full rotation group, Clebsch-Gordon coefficients, the Wigner-Eckart theorem, Racah coefficients, the Lorentz group, unitary groups.

235A-B Advanced Quantum Mechanics (4-4) F, W

Lecture, three hours. Fall: Lagrangian formalism, second quantization, interacting fields, perturbation theory. Winter: Feynman graph techniques, renormalization, symmetries, PCT theorem, connection between spin and statistics.

237A-B-C Elementary Particle Theory (4-4-4) F, W, S

Lecture, three hours.

238A-B-C Solid State Theory (4-4-4) F, W, S

Lecture, three hours. Bonding in solids; crystal symmetry and group theory; elastic properties of crystals; lattice vibrations, interaction of radiation with matter; cohesion of solids; the electron gas; electron energy bands in solids; ferromagnetism; transport theory; semiconductors and superconductors; many-body perturbation theory.

239A-B-C Plasma Physics (4-4-4) F, W, S

Lecture, three hours. The properties of plasmas, with major emphasis on fully ionized gases. Introduction to modern theoretical treatments. Applications to problems such as controlled thermonuclear fusion, propulsion, energy conversion, and the space sciences.

240 Relativistic Astrophysics (4)

Lecture, three hours. Applications of general relativity to astrophysical problems. Gravitational radiation and its detection. Theoretical structure of collapsed objects and their observed counterparts (white dwarfs, neutron stars, and black holes). The behavior of matter and radiation very early in the history of the universe. Not offered 1977-78.

255 General Relativity (4)

Lecture, three hours. Not offered 1977-78.

Special Topics (260-299)

These courses are designed to acquaint students with the basic concepts and methods underlying current research activity in selected branches of physics.

260A-B-C Topics in Solid State Physics (4-4-4) F, W, S

Seminar designed to acquaint students with recent advances in solid state physics. Lectures from the Physics Department (both faculty and graduate students), other UCI departments, and other institutions. May be repeated. Prerequisite: consent of instructor.

261A-B-C Advanced Plasma Seminar (4-4-4) F, W, S

Advanced topics in plasma physics: wave propagation, nonlinear effects, kinetic theory and turbulence, stability problems, transport coefficients, containment. Applications to controlled fusion and astrophysics. Prerequisite: Physics 239 or equivalent.

262A-B-C Topics in Modern Astrophysics (4-4-4)

Lecture, three hours. Not offered 1977-78.

263A-B-C High Energy Seminar (4-4-4) F, W, S

Discussion of advanced topics and reports of current research results in theoretical experimental high energy physics. May be repeated for credit. Prerequisite: consent of instructor.

264A-B-C Seminar in Conceptual Physics (1-1-1) F, W, S

Discussion of physics as an interrelated discipline, practice in oral presentation of ideas and problems. Required of all graduate students who have not passed the Ph.D. qualifying examination.

266A-B-C Advanced Mathematical Methods (4-4-4)

Lecture, three hours. Beyond the standard subjects now taught to physicists, introducing future theorists to the language and methods of post-1950 mathematics. Prerequisites are the standard mathematical physics courses and a willingness to participate actively. Not offered 1977-78.

267A-B-C Current Problems in High Energy Physics (4-4-4) F, W, S

Lecture, three hours. Study of current problems in experimental and theoretical high energy physics. Lectures mainly given by students. Course can repeatedly be taken for credit. Prerequisite: consent of instructor.

295 Experimental Research (4 to 12)

With the approval of a faculty member a student may pursue a research program in experimental physics. Typical areas include low temperature physics, plasma physics, spectroscopy, solid state physics, and elementary particle physics.

296 Theoretical Research (4 to 12)

With the approval of a faculty member a student may pursue a research program in theoretical physics. Typical areas include solid state physics, low temperature physics, plasma physics, and elementary particle physics.

299 Reading of Special Topic (4)

With special consent from a faculty member who will agree to supervise the program, a student may receive course credit for individual study of some area of physics.

School of Social Sciences

Christian Werner Dean

Undergraduate and graduate education in the School of Social Sciences at UCI represents a commitment to modern social science. Thus, whereas the classic subject matter areas of anthropology, economics, geography, linguistics, political science, psychology, and sociology are included in the School's educational programs, these programs go well beyond the traditional disciplines and can be characterized by the following three-way emphasis:

First, the faculty recognizes the value of systematic empirical observation and quantitative analysis in the study of human behavior. Thus, students in the School of Social Sciences will become familiar with the mathematical, computational, and statistical tools underlying modern social science. Developments in computer science and in mathematics oriented towards the problems of the social sciences and the refinement of techniques for the observational, experimental, and statistical study of human behavior have contributed major new elements to social science.

Second, many of the most interesting questions in the study of human behavior cannot be fixed within the traditional disciplinary boundaries. Some of the new and evolving areas which cross those orthodox boundaries are political sociology, public policy, cognitive anthropology, and psycholinguistics. Thus, many courses and course modules, rather than representing social science disciplines, are built around social science phenomena.

Third, the School shares the academic philosophy that considers the design of hypotheses and of systems of interrelated ideas about the possible structure of the world to be an essential part of scientific pursuit. Consequently, the

educational programs place substantial emphasis on understanding social science phenomena through the development of theories that can be used to guide empirical studies.

Opportunities for students in the School of Social Sciences to participate in the educational process extend well beyond attendance at courses that are offered. Students may develop independent study proposals in cooperation with interested faculty members; they are invited to participate in the quarterly evaluation of courses and instructors, to propose new courses and other modifications in existing programs, to nominate candidates for visiting faculty appointments, and to serve on various School committees. The School provides a variety of opportunities for faculty-student interaction, and students will find the faculty, administration, and academic counseling staff of the School highly accessible and responsive.

Special Facilities

The School of Social Sciences maintains several special facilities for research and education. The Social Sciences Research Laboratory occupies the entire fourth floor of the Social Sciences Laboratory Building. The facility contains forty experiment and control rooms situated around a central core where two PDP-11 computers are available for experimental research. The laboratory is used for faculty and student research.

The Farm School, a small, open, and ungraded elementary school located in a rural setting adjacent to the campus, serves the School and the University as a research facility for faculty and students having interests in children and how they learn. Each quarter, undergraduates receive

course credit for assisting staff teachers, for developing educational materials, and for observing and analyzing child behavior at the school.

The Anthropology Laboratory provides research facilities which include computer terminals for statistical studies and for the analysis of texts and other verbal material. The laboratory is also available for undergraduate and graduate instruction in field methodology and analytical techniques through the use of video-cassettes, films, tapes, computer quizzes, and artificial intelligence programs that simulate interviewing situations.

The School also maintains a Video Laboratory where social science students and faculty can produce and edit videotapes for various purposes. The facility currently contains a tape library used extensively in the study of conversation and interaction.

Degrees

Anthropology	B.A.
Economics	B.A.
Geography	B.A.
Political Science	B.A., Ph.D.
Psychology	B.A., Ph.D.
Social Science	B.A., Ph.D.
Sociology	B.A.

Graduate study in the School of Social Sciences is offered in the following three areas of emphasis:

Anthropology (Ph.D. in Social Science)
 Cognitive Sciences (Ph.D. in Psychology or Social Science)
 Politics, Society, and Social Issues (Ph.D. in Political Science or Social Science)

Honors

Honors at graduation, e.g., *cum laude*, *magna cum laude*, or *summa cum laude*, are awarded on the basis of grade point average. Of the graduating seniors, approximately 1% will be awarded *summa cum laude*, 3% *magna cum laude*, and 8% *cum laude*. In order to be considered for honors at graduation, a student must have a minimum of 72 units in residence at UCI immediately prior to graduation and must submit an application for the B.A. degree by the end of winter quarter of the senior year.

UNDERGRADUATE PROGRAM

Requirements for the Bachelor's Degree

University Requirements: See page 20.

School Requirements

- A. Familiarity with some basic mathematical, computational, and statistical tools underlying modern social science. This requirement is met by passing three courses in mathematics (Mathematics 5A-B-C, Mathematics 2A-B-C, Social Sciences 11A-B-C, or Social Sciences 100A-B-C) and one course in computer science (Information and Computer Science 1).
- B. An understanding of the fundamental concepts, analytical tools, and methods of social science. This requirement is met by taking two courses in the School of Social Sciences bearing a one-digit course number.
- C. An understanding of important advanced areas in social science. This requirement is met by passing satisfactorily nine upper-division courses in the School of Social Sciences, where at least three of these courses comprise a module. (See "Courses in Social Sciences" below for a discussion of course modules.) For modules which are listed with more than three courses, the student may normally elect to take any subset of three courses in the module. Appropriate substitutions may be made upon petition.
- D. Four additional social science courses from any level. Students are reminded that the Pass/Not Pass option is not applicable to course requirements A. through D. above or to any additional requirements listed for specific major programs below (see p. 54). Information and Computer Science 1 and Social Sciences 100A, however, may be taken Pass/Not Pass.

Courses used to meet requirements B. through D. above are included in the computation of the grade point average in courses required in the major program (see p. 21).

Major Requirements: Requirements for each of the majors in the School of Social Sciences are listed below. Courses taken to fulfill these requirements may be used to satisfy School requirements B. through D. above.

Anthropology

School requirements must be met and must include 12 courses (48 units) as specified below:

- A. One introductory course in anthropology (4 units).
- B. Two 4-unit courses in anthropological methods: Social Sciences 50L, Ixil Maya, and one additional 4-unit course in anthropological methods selected from Social

Sciences 80A-B-C, 101A-B, 101F-G, 287A-B, or equivalent.

- C. Four additional anthropology courses (16 units), three courses (12 units) of which must be upper-division.
- D. One approved 4-unit course in linguistics (Social Sciences 3, or equivalent).
- E. Four courses (16 units) in social science disciplines outside anthropology and linguistics, restricted as follows: two courses (8 units) in psychology or psychobiology, and two courses (8 units) in one of the remaining social science disciplines: sociology, geography, economics, or political science.

Economics

Alternative 1

School requirements must be met and must include nine courses (36 units) in economics as specified below:

- A. Social Sciences 111A-B, Microeconomics I, II (8 units).
- B. Social Sciences 111C, Macroeconomics (4 units).
- C. Six additional 4-unit upper-division economics courses. At least one of the six courses must be research oriented and involve the production of a significant research paper. It is strongly recommended that students take either the data analysis sequence (Social Sciences 101A-B-C) or the econometrics sequence (Social Sciences 101D-E).

Alternative 2

A student who has not completed the economics requirements specified above may obtain a B.A. degree in Economics by meeting the School requirements and following a program of study in the area, planned in consultation with a faculty advisor. The program is certified through a petition signed by the Dean and two regular members of the economics faculty. Students who wish to pursue this alternative are strongly advised to consult with a faculty advisor well in advance of submitting a petition.

Geography

A B.A. degree in Geography may be obtained by meeting the School requirements and following a program of study in the area, planned in consultation with a faculty advisor. The program is certified through a petition signed by the Dean and two regular members of the geography faculty. Students who wish to pursue this major are strongly advised

to consult with a faculty advisor well in advance of submitting a petition.

Political Science

School requirements must be met and must include 11 courses (44 units) in political science as specified below:

- A. Three introductory courses (12 units) in political science, normally Social Sciences 6A-C-E (6A, Introduction to Theorizing about Politics; 6C, Introduction to American Society and Politics; 6E, Introduction to Comparing Political Systems).
- B. Six 4-unit upper-division courses in political science, three of which must form a module.
- C. Two additional 4-unit political science courses from any level.

Honors Program in Political Science: The honors program in Political Science, open to selected students, provides for advanced work in either of two areas: Theory and Research, or Internship and Research. Admission to the program is based on a formal application normally submitted during fall quarter of the student's junior year. In order for an application to be considered, two conditions must be met. The student must have an overall grade point average of at least 3.2, and the student must have completed at least five political science courses (with a grade point average of 3.5 or higher) by the end of fall quarter of the junior year. Successful completion of the honors program requires (a) attendance at the Honors Seminar, (b) completion of an honors thesis, and (c) the passing of an oral examination administered by three members of the political science faculty.

Psychology

School requirements must be met and must include 15 courses (60 units) as specified below:

- A. Social Sciences 7, Introduction to Psychology (4 units).
- B. Two 4-unit lower-division psychology courses selected from courses listed in the following three groups. The student is strongly encouraged to take courses from two different groups. To obtain complete information on courses currently offered in these groups, consult lists available quarterly in the Undergraduate Advising Office, 627 Social Science Tower.

Group A: Social Sciences 24 (Children); Social Sciences 42 (Introduction to Social Psychology); Social Sciences

50K (Introduction to Applied Behavioral Science); Social Sciences 80W (Introduction to Developmental Psychology).

Group B: Social Sciences 3 (Introduction to Cognitive Linguistics); Social Sciences 50A (Acquisition of Language).

Group C: Social Sciences 50D (Seminar in Experimental Psychology); Social Sciences 50Q (Introduction to Visual Perception); Social Sciences 50T (Introduction to Human Memory).

C. Introduction to Anthropology and Introduction to Sociology (or approved substitutes).

D. Ten 4-unit upper-division courses with emphasis in psychology. Three courses (4 or more units each) taken from one of the following modules: Social Sciences 142 (Psycholinguistics); Social Sciences 151 (Experimental Psychology); Social Sciences 152 (Children); Social Sciences 153 (Rules and Decision Strategies); Social Sciences 154 (Personality Theory); Social Sciences 155 (Social and Personal Adjustment); Social Sciences 161 (Communication and Social Presentation).

Three additional 4-unit courses taken from the remaining modules not selected from the above.

Four additional 4-unit upper-division courses taken from any selection of module courses or special topics courses. Students are also encouraged to take psychology courses outside the School of Social Sciences if such courses are appropriate to their educational goals.

Social Science

Requirements for the B.A. degree in Social Science are met by completing the School requirements on page 184.

Sociology

A B.A. degree in Sociology may be obtained by meeting the School requirements and following a program of study in the area, planned in consultation with a faculty advisor. The program is certified through a petition signed by the Dean and two regular members of the sociology faculty. Students who wish to pursue this major are strongly advised to consult with a faculty advisor well in advance of submitting a petition.

Double Majors

Double majors can be obtained in the above programs by meeting the requirements of both programs. The same two-

digit and upper-division courses may *not* be used to meet the requirements of more than one major program. For example, a student who would like to major in both Social Science and Psychology must use two different sets of two-digit and upper-division courses to meet the requirements of the two programs.

Honors Concentration in Social Thought

The School of Humanities and the School of Social Sciences offer an honors concentration in Social Thought. The concentration offers undergraduates the opportunity to examine major social theories and their implications in a systematic and thorough way. In exploring intellectual foundations and contemporary development of modern social thought, students will develop their skills in critical analysis of society and theory.

The concentration identifies whole societies as its objects of knowledge. It has as its central focus alternative conceptions of society's structure, historical development, and future prospects as perceived and analyzed by political and social philosophers, historians, social scientists, and literary writers.

The concentration is taken in addition to a major in the School of Social Sciences or the School of Humanities. Thus, a student would major in History and Social Thought or Political Science and Social Thought, etc. Students interested in this program should apply to a member of the faculty steering committee. A student is admitted to the program on the recommendation of the steering committee. Students are selected on the basis of aptitude for theory. A grade point average of at least 3.2 is required for admission, and in order to complete the honors program, a grade point average of at least 3.5 must be attained in courses in the Social Thought concentration.

Two core courses, two courses in surveys of theory, and two courses in intensive studies of theorists will be required. Additional problem-centered courses will be recommended. Lists of courses in these categories and of the current membership of the steering committee may be obtained from the School of Social Sciences Undergraduate Advising Office or the School of Humanities Office of Undergraduate Studies. A senior honors thesis is required.

Planning a Program of Study

Since there are many alternative ways to plan a program, some of which may require careful attention to specific major requirements, students should consult with their as-

signed faculty advisors or visit the Undergraduate Advising Office (627 Social Science Tower) to design an appropriate program of study.

Students who elect one of the Social Sciences majors in their freshman year might begin by taking the one-digit courses required by their major, and one of the mathematics sequences listed under Part A. of the School requirements. It is a good idea to take these courses early since they include fundamental concepts that will be widely applicable in more advanced courses. In addition, six courses for the breadth requirement might be taken during the first year. In the sophomore year, the student might complete the course on computing, three courses toward the breadth requirement, four courses in the social sciences, and four electives. Students who are planning to go on to graduate school can use their freshman and sophomore years to advantage by taking courses in theory, research methods, mathematics, and other areas important to graduate study. In the junior and senior years, the student should take courses in the major area and should create an individualized program of study through a combination of courses and course modules which fall in an area of interest. Particular attention should be paid to planning a program of study that will ensure that major requirements are met prior to graduation.

Transfer Students

Freshmen and Sophomores: Students transferring to UCI as freshmen or sophomores will fulfill the regular requirements of the four-year program either through work at UCI or through transfer credit for comparable work elsewhere.

Juniors: Junior transfers with good records at other accredited colleges and universities will normally be presumed to have satisfied the University requirements and School requirement B. Students anticipating transfer to UCI in their junior year, however, should plan their program so as to anticipate the special mathematics requirements of the program (School requirement A.). Every effort will be made to accommodate individual variation in background, provided students are prepared to commit themselves to intensive work in areas of deficiency. Ordinarily, the typical two-year program for junior transfers is simply the last two years of the regular four-year program, except that students who have not satisfied the mathematics requirements in the School should plan to do so in the junior year and must do so before graduation.

Seniors: Students wishing to graduate with a degree in the

School by transferring to UCI in their senior year should plan their work carefully to ensure that the requirements can be met in one year of residence. In general, differences between the program at UCI and programs elsewhere make senior transfers difficult.

The 3-2 Program with the Graduate School of Administration

Students who are interested in a career in administration and who have completed all of the course requirements for the B.A. degree in one of the major programs in the School of Social Sciences may apply to the Graduate School of Administration for their 3-2 Program. Applications should be made early in the junior year. During the senior year, students will take courses in administration which will count toward the 180 total units needed to receive a Bachelor's degree. Upon successful completion of the required courses and units, usually at the conclusion of four years of undergraduate study, a B.A. degree will be awarded in the student's major by the School of Social Sciences. An M.S. degree in Administration will be awarded after successful completion of all requirements for the advanced degree, usually at the end of the fifth year. See page 266.

Teaching Credentials

Students planning to seek State of California teaching credentials in social science should discuss their undergraduate curriculum plans with the School's academic counselors. Students completing any of the B.A. programs in the School qualify for a waiver of the Single Subject Credential Examination in social science. For additional information about teaching credentials, see page 241.

Mathematics and Social Science

The mathematics requirement stems from the nature of modern social science. The concepts and terms of mathematics, statistics, and computers are an important part of the social scientist's vocabulary. Basic knowledge of these tools is necessary to an understanding of current literature in these fields, to the analysis of data, and to an intelligent use of models in social sciences. Each candidate for a degree in the School of Social Sciences is expected to have a basic knowledge of probability, statistics, and computing. In addition, for students who are preparing for graduate school in an area of social science, it will be important to supplement the minimal mathematics requirements with additional courses related to mathematics and social science methodology. The particular courses which would be recommended are not specified here, however, since they are

highly dependent on the major emphasis of the student. Students who are preparing for graduate study should consult their advisors to determine a program of study which will give them the research skills necessary for successful graduate work.

GRADUATE PROGRAM

The School of Social Sciences offers graduate education in areas of emphasis for which recognized groups of faculty and graduate students have been formed, and also offers training in interdisciplinary social science guided by special faculty committees. Most faculty and graduate students are affiliated with one of three groups (Anthropology; Cognitive Sciences; and Politics, Society, and Social Issues) which are described below. Depending upon the focus of the student's dissertation, successful completion of the graduate programs leads to the Ph.D. in either Political Science, Psychology, or Social Science. The Ph.D. in Social Science is offered to those students whose interests do not fall neatly within traditional disciplinary boundaries. The School does not offer a program leading to the Master's degree; however, when recommended by the faculty, the M.A. in Social Science may be conferred upon doctoral students after satisfaction of the Graduate Division requirements. For more information about graduate study in the School, please write to the Director of Graduate Studies, School of Social Sciences.

Admissions

Potential graduate students should apply to the Graduate Division for admission to the graduate program of the School of Social Sciences, indicating the title of the degree which they intend to pursue (Ph.D. in Political Science, Psychology, or Social Science) and the academic area in which they expect to concentrate. In addition to the Graduate Division admission requirements, each group may prescribe special requirements or expectations of applicants. All applicants are required to submit scores for the Graduate Record Examination Aptitude Test. Letters of recommendation are an important factor in the admission decision.

Financial Aid

Limited financial support in the form of teaching assistantships and fellowships is available to qualified students. There may be traineeships and research assistantships available under grants to individual faculty. The School attempts to provide financial assistance for all graduate stu-

dents, but this is usually impossible given the limited resources. Students are expected to seek aid for which they are eligible from sources external to the University and cannot be considered for University aid unless they do so.

General Requirements for the Ph.D. Degree

The general requirements for the Ph.D. in Political Science, Psychology, or Social Science (in addition to those which apply to all Graduate Division students) are summarized below. Each recognized group within the School of Social Sciences may describe additional requirements, subject to the approval of the Graduate Council.

Length of Study

The faculty envisions a student's Ph.D. program to be approximately four to five years duration.

Residence

Intellectual training of the sort the School proposes requires full-time study and constant contact with the faculty. The School does not accept part-time students.

Language

A knowledge of one foreign language, appropriate to the student's research concerns, is required. Each student's candidacy committee or group will prescribe specific requirements. For those proposing to engage in field research, this may involve interviewing capabilities. For others, working in areas where little or no foreign language materials are relevant, a correspondingly lower level of competence will often suffice.

Examinations

The scope and format of the qualifying examinations will be determined by the student's candidacy committee. These examinations may be written or oral, or both, and will usually be conducted after approximately two years of residence. A student may also be required to take additional examinations, submit research papers, or conduct experiments which the committee deems appropriate to the student's interests and goals. Upon satisfactory completion of the qualifying examinations, and approval of the dissertation topic, the candidacy committee will recommend that the student be advanced to candidacy for the Ph.D. degree.

Dissertation

Following advancement to candidacy, the dissertation is supervised by a dissertation committee ordinarily consisting of three members of the candidacy committee. The purpose

of the dissertation is to demonstrate the student's ability to originate interesting and significant research problems, to investigate such problems both broadly and deeply, and to write scholarly material of publishable quality.

Anthropology Group

Unlike traditional anthropologists, the Anthropology Group has not limited its interests to small communities, nor to methodologies utilizing the types of data bases accumulated by a traditional anthropologist during a period of field work. Students are expected to develop a professional level of competence in any area of the social sciences relevant to their research problem without regard for traditional boundaries between the social sciences. A major commitment of the Group is the development of students' skills in using powerful quantitative methodologies known in the social sciences today.

Requirements

Students in the Anthropology Group design their individual programs of study in conference with their faculty advisors. Graduate students are expected to attend the Anthropology Group Colloquium throughout their graduate careers.

Two approved courses in analytical methods and two approved courses in a field outside anthropology are required. Normally these will be completed during the first two years of study.

Reviews

During the first year the student will prepare an original paper under the direction of faculty advisors. Each student will present this work in a short talk to the Colloquium, normally during the spring quarter of the first year. Each of the advisors will provide the student with a detailed written critique of the paper as part of the first-year evaluation of the student's overall progress.

The second review takes the form of qualifying examinations conducted by the student's candidacy committee. These examinations are based partly on a preliminary dissertation proposal and partly on the student's general studies since the first-year review. Students are expected to complete these examinations no later than the spring quarter of their third year.

Satisfactory completion of the dissertation, including an oral defense, is the final requirement in completing the Ph.D. The title of the degree conferred will be Doctor of Philosophy in Social Science.

Anthropology Faculty

John P. Boyd: Mathematical Anthropology
 Michael L. Burton: Anthropology
 Francesca M. Cancian: Sociology
 Frank Cancian: Anthropology
 Douglas K. Chalmers: Psychology
 Norma Chinchilla: Sociology
 Benjamin N. Colby: Anthropology
 Susan Haviland: Cognitive Psychology and Psycholinguistics
 Joseph G. Jorgensen: Anthropology
 Jean C. Lave: Anthropology
 Karen Leonard: History
 Craig MacAndrew: Psychology
 Duane Metzger: Anthropology
 A. Kimball Romney: Social Science
 Volney Steffle: Psychology and Anthropology
 W.C. Watt: Social Science
 Douglas White: Anthropology

Cognitive Science Group

The Cognitive Science Group is made up of certain faculty of the School of Social Sciences and graduate students who are pursuing the Ph.D. in either Psychology or Social Science, all of whom share common research interests in human cognition.

The Cognitive Science Group is concerned with how the human mind works. It conducts research and provides advanced graduate training in cognitive psychology and theoretical linguistics. The Group lays special stress on precise, scientific approaches to issues in human cognition. It views the formation of formal models as instrumental in understanding what the human mind is all about.

The Group takes as its intellectual domain the following: mathematical psychology, perception (visual and auditory), cognitive development, problem solving, learning, memory, psycholinguistics, and theoretical linguistics. It does not emphasize traditional training in psychology or linguistics per se; rather, it stresses the integration of research in the areas mentioned above (and related areas) into a discipline whose central focus is the study of human knowledge and human information processing, regardless of the medium in which it is expressed.

Admissions

In addition to meeting the general requirements for admission, applicants should have a strong academic background which demonstrates scientific aptitude (for example, in

mathematics, computer science, physics, experimental psychology, or formal linguistics). High scores on the Graduate Record Examination Aptitude Test are expected, with special emphasis on Quantitative Aptitude.

Requirements

First-year students are expected to participate in two year-long sequences of courses. One sequence, the methods sequence, covers mathematical statistics, experimental design, and formal models of language and logic. The second sequence is a proseminar in which the faculty address research topics of particular interest. First-year students are also expected to carry out a first-year research project under the supervision of a member of the faculty and to report on their research towards the end of the first year. All students and faculty attend a weekly year-long research colloquium series called the Proseminar in the Cognitive Sciences.

The second-year graduate student is expected to continue research and to report on it in the Proseminar in the Cognitive Sciences. Students are expected to continue developing their research tools by taking relevant courses in mathematics, logic, computer science, statistics, etc., and to gain considerable familiarity with literature in substantive areas.

Reviews

There are three formal reviews in the Group — the first takes place at the end of the first year. The faculty as a group reviews the performance of each student and recommends continuation or withdrawal from the Group. The faculty may recommend probation and subsequent review in cases where there are specific areas of weakness, but general competence.

The second review takes the form of qualifying examinations conducted by a candidacy committee ordinarily consisting of three faculty from the Group plus two other faculty from the campus. These examinations are based partly on a preliminary dissertation proposal and partly on the student's general studies since the first-year review. Students are expected to complete the qualifying examinations no later than the spring quarter of their third year.

The third review is a defense of the Ph.D. dissertation. It takes the form of a colloquium and occurs when the dissertation is substantially complete. Subsequent to this, the dissertation committee may recommend certain revisions, after which the dissertation is considered to be complete and is submitted for the doctoral degree.

Cognitive Science Faculty

William Batchelder: Mathematical Models, Measurement and Cognitive Processes

Isabel Birnbaum: Learning and Memory

Myron Braunstein: Visual Perception and Computer Applications

Tom N. Cornsweet: Visual Psychophysics and Psychophysiology

Peter Culicover: Linguistics

Richard Degerman: Multivariate Analysis and Perception

Henry Hamburger: Mathematical Linguistics

Susan Haviland: Cognitive Psychology and Psycholinguistics

Louis Narens: Measurement and Logic

Kenneth Wexler: Theoretical Psycholinguistics

John I. Yellott, Jr.: Mathematical Models and Visual Perception

Politics, Society, and Social Issues Group

The Group in Politics, Society, and Social Issues is composed of faculty and students trained in various disciplines who share a common interest in authority, participation, and public policy formation. Members of the Group are committed to studies involving the application of social science theory to the solution of social issues.

The Ph.D. is granted in either Political Science or Social Science.

The Group places special emphasis on recruiting students who propose to pursue research in the following areas: (a) change and structure of cultures and of social and political units; and (b) power, authority, and value allocations — relating to public policy, to organization, to participation, and to relationships within and between social and political units.

Faculty are currently conducting research on mass media and society; democracy and participation; public policy with an emphasis on social and transportation programs; political thought; quantitative political science; foreign policy and international relations; and comparative politics with an emphasis on Europe and Latin America.

Research Institutes

Two University research institutes affiliated with the Group through joint faculty appointments — the Institute of Transportation Studies and the Public Policy Research Organization — are located at the University of California, Irvine. Both sponsor theoretical and applied research on social issues. They may also provide research funding for

graduate students who select public policy or transportation as a specialized field.

Admissions

U.S. students are normally expected to have a grade point average above 3.0 and scores on the two parts of the Graduate Record Examination (GRE) Aptitude Test which total over 1,100. Decisions on admission are strongly influenced by letters of recommendation and the statement of student interest. Foreign students will be evaluated primarily on the basis of letters of recommendation and completed seminar or research papers, but GRE scores are required in all cases.

Requirements

Each year a core course program, focusing upon methodology and substantive problems of current interest, will be outlined for entering graduate students. Entering students normally must take for credit at least four of these courses. If the student has completed a master's degree, only three core courses are required. At the completion of the first year, the performance of each student is reviewed and the faculty will indicate whether the student should continue in the Group. Attendance in a colloquium series also is required for all graduate students during their first two years in residence.

Reviews and Examinations

At the completion of the first year, a review of performance in the core course program will be conducted for each student by the Group's faculty. Students ordinarily are expected to maintain a grade point average of 3.5 or better.

Comprehensive written exams are required before a student can be advanced to candidacy. The level of competence required in mathematics and language will be decided by the student's candidacy committee.

Students may take the comprehensive examination on two occasions. Students who have not been advanced to candidacy at the end of nine quarters of graduate study may be disqualified for unsatisfactory academic progress.

Politics, Society, and Social Issues Faculty

Paul Bernstein: Democratization of Institutions, International Political Economy, and Eastern Europe
 James Danziger: Urban Political Systems and Public Policy Analysis
 Gordon J. Fielding: Urban Theory and Urban Policy
 Creel Froman: Human Analysis

Bernard Grofman: Mathematical Models of Collective Decision Making, Formal Democratic Theory, Sequential Decision Making, and Politics of Small Groups.

Jerome Kirk: Sociology, Social Anthropology, Social Psychology, Social Control, and Politics

Charles Lave: Policy Oriented Econometric Studies and Social Change

M. Ross Quillian: Mass Communication, Participatory Forms of Social Organization, Sociological Theory, Sociology of Science, and Artificial Intelligence

William Schonfeld: Authority, Democratic Theory, and Comparative Politics

Caesar Sereseres: American Foreign Policy — Bureaucratic and Psychological Dimensions; Latin American Comparative Politics; Mexican-American Politics — Public Policy Perspectives

Rein Taagepera: Quantitative Political Science, Soviet Affairs, and Physics

Gary Thom: Political and Social Theory

Graduate Study in Other Areas

When the interests of the student lie outside of the areas encompassed by the recognized Groups, the Director of Graduate Studies may appoint a faculty committee of at least three members to guide an independent course of study leading to the Ph.D. degree in Political Science, Psychology, or Social Science. All requirements of the School of Social Sciences and the Graduate Division must be satisfied. The graduate program of the School does not include educational, counseling, or clinical psychology.

SCHOOL OF SOCIAL SCIENCES FACULTY

Christian Werner, Ph.D. The Free University of Berlin, *Dean of the School of Social Sciences and Professor of Geography*

William Batchelder, Ph.D. Stanford University, *Professor of Psychology*

Henry Beck, Ph.D. Stanford University, *Assistant Professor of Politics and Human Sociobiology*

Duran Bell, Ph.D. University of California, Berkeley, *Associate Professor of Economics*

Melvin Bernstein, Ph.D. University of California, Los Angeles, *Assistant Vice Chancellor — University and Student Affairs and Lecturer in Social Science*

Paul Bernstein, Ph.D. Stanford University, *Assistant Professor of Political and Social Science*

Arnold Binder, Ph.D. Stanford University, *Professor of Psychology and Social Ecology*

- Isabel Birnbaum, Ph.D. University of California, Berkeley, *Associate Professor of Psychology*
- John P. Boyd, Ph.D. University of Michigan, *Associate Professor of Mathematical Anthropology*
- Myron L. Braunstein, Ph.D. University of Michigan, *Associate Dean of the School of Social Sciences and Professor of Psychology*
- Dickson D. Bruce, Jr., Ph.D. University of Pennsylvania, *Associate Professor of Comparative Culture and Social Science*
- Michael L. Burton, Ph.D. Stanford University, *Associate Professor of Anthropology*
- Michael Butler, A.B. Harvard University, *Associate Professor of Social Science and Director of the Farm School*
- Francesca M. Cancian, Ph.D. Harvard University, *Associate Professor of Sociology*
- Frank Cancian, Ph.D. Harvard University, *Professor of Anthropology*
- Douglas K. Chalmers, Ph.D. University of Iowa, *Associate Professor of Psychology*
- Norma Chinchilla, Ph.D. University of Wisconsin, *Assistant Professor of Comparative Culture and Social Science*
- Peter Clecak, Ph.D. Stanford University, *Professor of Comparative Culture and Social Science*
- Jay Cohn, Ph.D. University of California, Irvine, *Clinical Professor of Psychiatry & Human Behavior, Director of Graduate Psychiatric Education, and Lecturer in Social Science*
- Benjamin N. Colby, Ph.D. Harvard University, *Professor of Anthropology*
- Tom N. Cornsweet, Ph.D. Brown University, *Professor of Psychology*
- Peter W. Culicover, Ph.D. Massachusetts Institute of Technology, *Associate Professor of Social Science (on leave W, S)*
- James N. Danziger, Ph.D. Stanford University, *Assistant Professor of Political Science*
- Richard L. Degerman, Ph.D. Johns Hopkins University, *Associate Professor of Psychology (on leave F, W)*
- Raúl Fernandez, Ph.D. Claremont Graduate School, *Associate Professor of Comparative Culture and Social Science*
- Gordon J. Fielding, Ph.D. University of California, Los Angeles, *Professor of Social Science and Administration and Director, Institute for Transportation Studies – Irvine*
- James J. Flink, Ph.D. University of Pennsylvania, *Professor of Comparative Culture and Social Science*
- Creel Froman, Ph.D. Northwestern University, *Professor of Social Science (on leave)*
- Harold Garfinkel, Ph.D. Harvard University, *Professor of Social Science*
- Gilbert Gonzalez, Ph.D. University of California, Los Angeles, *Assistant Professor of Comparative Culture and Social Science*
- Louis Gottschalk, M.D. Washington University School of Medicine, *Professor of Psychiatry & Human Behavior, Social Ecology, and Social Science; Chairman of the Department of Psychiatry & Human Behavior*
- Bernard N. Grofman, Ph.D. University of Chicago, *Associate Professor of Political Science and Social Psychology*
- Henry Hamburger, Ph.D. University of Michigan, *Associate Professor of Mathematical and Computer Models*
- Joe T. Hart, Ph.D. Stanford University, *Associate Professor of Psychology*
- Susan Haviland, Ph.D. Stanford University, *Assistant Professor of Psychology and Psycholinguistics*
- John C. Hoy, M.A. Wesleyan University, *Vice Chancellor – University and Student Affairs and Senior Lecturer in Administration and Social Science*
- Tarow Indow, Ph.D. Keio University, Tokyo, *Visiting Professor of Psychology*
- Joseph G. Jorgensen, Ph.D. Indiana University, *Director of the Program in Comparative Culture and Professor of Comparative Culture and Social Science*
- Sheen T. Kassouf, Ph.D. Columbia University, *Professor of Economics*
- George Kent, Ph.D. University of California, Berkeley, *Associate Professor of Comparative Culture and Social Science*
- Jerome Kirk, Ph.D. Johns Hopkins University, *Associate Professor of Anthropology and Sociology*
- Denis C.J. Lacorne, Ph.D. Yale University, *Lecturer in Political Science*
- Charles Lave, Ph.D. Stanford University, *Associate Professor of Economics*
- Jan C. Lave, Ph.D. Harvard University, *Associate Professor of Anthropology*
- Karen Leonard, Ph.D. University of Wisconsin, *Assistant Professor of Comparative Culture and Social Science*
- Gary Lynch, Ph.D. University of Chicago, *Professor of Psychobiology and Social Science*
- Craig MacAndrew, Ph.D. University of Chicago, *Associate Professor of Psychology*
- Julius Margolis, Ph.D. Harvard University, *Professor of Economics*
- Frederick L. McGuire, Ph.D. New York University, *Associate Professor of Medical Psychology and Psychiatry & Human Behavior*

- Duane Metzger, Ph.D. University of Chicago, *Professor of Anthropology and Social Science*
- Carlton Moss, *Lecturer in Comparative Culture and Social Science*
- Louis Narens, Ph.D. University of California, Los Angeles, *Associate Professor of Social Science and Psychiatry & Human Behavior* (on leave S)
- Robert Newcomb, Ph.D. University of California, Santa Barbara, *Lecturer in Social Science and Teacher Education*
- E. Mansell Pattison, M.D. University of Oregon, *Associate Professor of Psychiatry & Human Behavior and Anthropology*
- M. Ross Quillian, Ph.D. Carnegie-Mellon University, *Associate Professor of Social Science*
- George O. Roberts, Ph.D. Catholic University of America, *Special Assistant to the Vice Chancellor – Academic Affairs, and Professor of Comparative Culture and Social Science*
- A. Kimball Romney, Ph.D. Harvard University, *Professor of Social Science and Anthropology*
- William R. Schonfeld, Ph.D. Princeton University, *Associate Professor of Political Science* (on leave)
- Caesar D. Sereseres, Ph.D. University of California, Riverside, *Assistant Professor of Political Science*
- Kenneth C. Squires, Ph.D. University of California, San Diego, *Lecturer in Social Science*
- Arnold Starr, M.D. New York University School of Medicine, *Professor of Medicine and Psychobiology*
- Volney Steffle, B.A. Reed College, *Associate Adjunct Professor of Psychology and Anthropology*
- Rein Taagepera, Ph.D. University of Delaware, *Associate Professor of Political Science*
- Dickran Tashjian, Ph.D. Brown University, *Associate Professor of Comparative Culture and Social Science* (on leave F, W)
- Gary Thom, Ph.D. Yale University, *Assistant Professor of Political Science*
- Richard F. Thompson, Ph.D. University of Wisconsin, *Professor of Psychobiology and Psychology*
- W.C. Watt, Ph.D. University of Pennsylvania, *Professor of Social Science and Anthropology*
- Kenneth Wexler, Ph.D. Stanford University, *Director of Graduate Studies of the School of Social Sciences and Associate Professor of Psychology*
- Douglas R. White, Ph.D. University of Minnesota, *Associate Professor of Comparative Culture and Social Science*

- Joseph L. White, Ph.D. Michigan State University, *Professor of Comparative Culture and Psychology*
- John I. Yellott, Jr. Ph.D. Stanford University, *Associate Professor of Psychology*

COURSES IN SOCIAL SCIENCES

Courses in the School do not always resemble conventional university courses either in content or in format. Students at any level are encouraged to suggest areas of individual study and may (with faculty approval) pursue any intellectually challenging area within the social sciences. Such courses may include special seminars, study projects, individual papers, or any other useful educational activity. The faculty encourages students to present evidence that they have done interesting and original work and to receive official credit for that work by enrolling in an individual study course. Such courses are numbered 198 and 199 (undergraduate) and 299 (graduate).

Students from other schools are encouraged to take courses and talk with faculty within the School of Social Sciences. In addition to the introductory courses, many of the upper-division courses are open to students without previous work in social science.

All courses in the School are listed under Social Science. Since many of the courses touch on several areas of social science, a list of major areas of concentration is included in the description of a course. The classification terms used for this purpose are anthropology, economics, geography, political science, psychology, and sociology. Most upper-division courses are arranged in modules in order to provide continuity over individual courses, to facilitate long-range planning by students, and to encourage the pursuit of interdisciplinary programs of study. Students are encouraged to take advantage of the module concept to acquire experience in several integrated sets of courses. *It is not necessary, however, for students to take all courses listed in a module; module courses may be taken individually.*

The specific courses offered in module form may vary from year to year, but the structure of the curriculum will remain stable. Ordinarily, a student can expect to find at least one module offered in each broad area each year. By observing the content area of courses and by making effective use of module sequences, a student can assemble an individual program of study in a particular discipline or in an interdisciplinary area.

Listed below are course descriptions of some of the proposed courses to be offered during 1977-78. A final, complete listing of the courses offered will be available prior to the beginning of each quarter in 627 Social Science Tower. Students who are interested in obtaining this material may receive copies by visiting or writing to the School of Social Sciences.

LOWER-DIVISION COURSES

1 Introduction to Analysis (4) S

Lecture, two hours; discussion, one hour. Basic introduction to the art of using analytical models: how to create, test, use, and love them. Primary emphasis on developing skill and creativity in using concepts to predict, understand, and influence human behavior.

2 Introduction to Anthropology

Basic introduction to anthropology.

2A Introduction to Anthropology (4) W

Lecture, two hours; discussion, one hour. A general introduction to anthropology with emphasis on human adaptation. Course will include archaeology, physical anthropology, and part of sociocultural anthropology.

2B Introduction to Anthropology (4) S

Lecture, two hours; discussion, one hour. A general introduction to the study of cultural systems.

3 Introduction to Cognitive Linguistics (4) F

Lecture, two hours; discussion, one hour. Emphasis on the notion that language is a remarkable achievement of the human mind. Current insights into the nature of language; how language is to be described, and why it makes a difference how one describes it; language and thinking; related topics.

4 Introduction to Economics

Basic introduction to economics.

4A Introduction to Economics I (4) F, W

Lecture, two hours; discussion, one hour. A basic introduction to economics.

4B Introduction to Economics II (4) W

Applications of economic theory to current issues such as crime, marriage and divorce, the costs and benefits of public higher education, the determination of faculty salaries, the optimal level of governmental expenditure in a democracy, and advertising.

5 Introduction to Geography (4) F, S

Lecture, one hour; laboratory, two hours. Basic introduction to geography.

6 Introduction to Political Science

Basic introduction to politics, society, and social issues.

6A Theorizing about Politics (4) F

Lecture, two hours; discussion, one hour. Types of questions: What is politics? What are the theoretical and philosophical bases

for different types of political arrangements? How do these perspectives get translated into reality? Among others, the work of Rousseau, Locke, Mill, and Marx will be read.

6B Quantitative Political Science (4) W

Lecture, two hours; laboratory, two hours. A quantitative discussion of how states grow, decay, fight, and trade and cluster together, and how people group themselves, fight, get along, and reach agreements. Prerequisite: high school mathematics.

6C Introduction to American Society and Politics (4) S

Lecture, two hours; discussion, one hour. Provides a public policy approach to the study of the American political process, explores the impact of such factors as centralization, bureaucratization, and technology. Each quarter deals with specific public policy issues such as minority politics, etc.

6E Introduction to Comparing Political Systems (4) W

Lecture, two hours; discussion, one hour. Presents various analytic methods used to compare political systems. Emphasis on examination of theories and research with national political systems as units of analysis. Understanding how it is possible to compare political units and make meaningful statements about them.

7 Introduction to Psychology (4) F, W, S

Lecture, three hours; quiz, one hour; laboratory, one hour. Weekly topics include: human development, memory and problem solving, learning theory, perception, biological mechanisms, emotion and motivation, personality theory, social psychology, and behavior disorders. Students are expected to volunteer for participation in several ongoing laboratory experiments.

8 Introduction to Sociology (4) F

Lecture, three hours. Introduction to sociology and social psychology.

11A-B-C Probability and Statistics in the Social Sciences (4-4-4)

F, W, S

Lecture, three hours; laboratory, one hour. An introduction to probability and statistics. Emphasis on thorough understanding of probabilistic and statistical logic and methods, as used in the social sciences. Examples from anthropology, economics, geography, political science, psychology, and sociology.

17 Comparative Economic Systems (4) S

Lecture, three hours. A comparative analysis of the theory and practice of classic and contemporary economic systems: capitalism, socialism, communism. Analysis of market systems and planning systems in selected countries. Prerequisites: Social Science 4A-B. (Emphasis: economics)

18 Economic Development (4) S

Lecture, three hours. A survey course of the basic theories and problems of the development of poor countries. (Emphasis: economics)

24 Children (4) S

Lecture, three hours; laboratory, one hour. A multidisciplinary introduction to children, drawing on material from psychology,

- sociology, anthropology, political science, linguistics, folklore, art, history, and students' observations. (Emphasis: psychology, anthropology, sociology)
- 30 Introduction to Marxism: Theory and Practice (4) W**
Lecture, three hours. An exploration of Marxist theory and its various interpretations by "theorists" such as Avineri, Althusser, Giddens, Hyppolite, Lukacs, and "practitioners" such as Lenin, Luxemburg, and Mao Tse Tung. An examination of Marxist "practice" in the Soviet and West European context. (Emphasis: political science)
- 31 Introduction to Party Politics (4) S**
Lecture, three hours. The course examines existing typologies of party organizations and party systems. Specific party organizations from one-party, two-party, and multi-party systems are studied in depth. Examples are taken from Western Europe, Eastern Europe, and Third World countries. (Emphasis: political science)
- 33 Decision Theory and Politics (4) W**
Lecture, three hours. The course will be an elementary and non-technical introduction to applications of game theory and decision theory to political decision making in areas such as rationality and voter choice, putting together a party platform that will maximize votes, measuring political power, deciding how to optimally allocate campaign resources, designing election systems, deciding how much to reward your allies to keep them on your side, etc. (Emphasis: political science)
- 34 Political Propaganda (4) W**
Lecture, three hours. This course will cover a range of propaganda techniques from logical fallacies and the art of lying with statistics to studies of political campaign techniques and political cartooning. Its aim is to train students as reasonably sophisticated consumers of the political propaganda which is omnipresent in our environment. A large part of the course will be devoted to analysis of the news and information features of the mass media. (Emphasis: political science)
- 36 Introduction to Political Belief Systems (4) F**
Lecture, three hours. An introduction to the empirical study of political belief systems — their elements, sociological origins and functions, psychological uses, political consequences — with particular emphasis on what various Americans, including Irvine students, believe about politics. (Emphasis: political science)
- 37 International Dominance and Dependence (4)**
Lecture, three hours. Observations on how and why some nations expand and dominate other states, and why and how some states become vulnerable to such domination. Course procedure involves comparing historical cases to general theories, elaborating new points of theory when necessary. (Emphasis: political science) Not offered 1977-78.
- 40 Money and Banking (4) W**
Lecture, three hours. Introduction to the roles of money and near-monies in modern economic life. A short history of various financial institutions and the theories concerning them will be presented. Topics of current public interest, including inflation and international monetary disorders, will be analyzed. (Emphasis: economics)
- 42 Introduction to Social Psychology (4)**
Lecture, two hours; discussion, one hour. The study of the sociological contributions to theory and research in social psychology, with focus on the social influences on personality, attitudes, beliefs, and behavior; socialization, human groups, and social interaction. (Emphasis: psychology, sociology)
- 50 Courses Introductory to Special Areas**
- 50A Acquisition of Language (4) W**
Lecture, two hours; discussion, one hour. Examination of recent work concerning the linguistic development of the child. (Emphasis: psychology, sociology, anthropology)
- 50B The Evolution of Landforms (4) S**
Lecture, three hours. Introduction to geomorphology; major forces which shape the relief of the earth's surface and the forms which result from their activity. General principles demonstrated using examples from western United States with special emphasis on California. (Emphasis: geography)
- 50C Introduction to Marriage and the Family (4) W**
Lecture, three hours. Basic issues concerning marriage, family, and kinship. Emphasis on cross-cultural and cross-societal comparisons. Kinship groups, the nature of human marriage, relationships of the family to other social institutions, child rearing, plural marriages, family politics, speculations concerning the future of the family. (Emphasis: anthropology, sociology, psychology)
- 50D Seminar in Experimental Psychology (4) F, W, S**
Seminar, three hours. Discussion and analysis of problems involved in doing experiments and in drawing conclusions. For students who might consider a research career in the social sciences, particularly psychology. Focus on questions such as "How are hypotheses developed and tested?" and "What problems arise in designing experiments and in collecting and interpreting data?" (Emphasis: psychology)
- 50H The Women's Movement (4) S**
Lecture and discussion, three hours. The social changes that caused the current movement, the movement's ideology and organization, and the success of the movement in changing sex roles. Emphasis on historical data and sociological theories of social movements. (Emphasis: sociology)
- 50I Scientific Method in Psychology (4)**
Lecture and discussion, three hours. An introduction to the bases for scientific inquiry. What is "science?" Goals, methods, and assumptions of experimental psychology (Emphasis: psychology)
- 50K Introduction to Applied Behavioral Science (4) F, W**
Lecture and discussion, three hours. An introduction to applied behavioral science with emphasis on behavioral patterns and factors which influence their acquisition and performance. The-

ories and principles from the fields of learning, motivation, and personality. (Emphasis: psychology)

50L The Ixil Maya (4) S

Lecture, two hours; laboratory, one hour. A case study in ethnography. The life and culture of the Ixil Maya Indians of highland Guatemala are described and analyzed. Prerequisite: Social Science 2. (Emphasis: anthropology)

50M Introduction to Applied Social Science (4) W

Lecture, three hours. This course will deal with applications of methods of the social sciences to a variety of real world topics. (Emphasis: anthropology, psychology)

50Q Introduction to Visual Perception (4) W

Lecture, three hours. An introductory survey of the scientific study of vision. (Emphasis: psychology)

50R Gypsies, Tramps, and Thieves: Authority and Control in Subcultural Groups (4)

Lecture, two hours; discussion, one hour. Introduction to the nature of authority interaction within "closed" subcultures. The style of "international relations" these social units establish with other groups and the ways in which distinct theoretical approaches determine descriptions of these groups will be considered. (Emphasis: sociology, political science) Not offered 1977-78.

50T Introduction to Human Memory (4) W

Lecture, three hours. Covers the core concepts of modern research and theorizing about human behavioral memory, including structural subdivisions (e.g., perceptual memory, short-term memory, long-term memory), different measures of memory (e.g., recall, recognition), and some practical applications of memory research (e.g., mnemonics). (Emphasis: psychology)

61 Understanding Social Facts (4)

Discussion, two hours; laboratory, two hours. Focus on perspectives toward the question of what constitutes sociological knowledge and processes through which competent investigators have built sociological arguments from data. Examination of several types of research techniques. (Emphasis: sociology, anthropology, psychology, economics) Not offered 1977-78.

80 Lower-Division Special Topics

80A-B-C Ethnography I, II, III (4-4-4) F, W, S

Introductory topics in ethnography. (Emphasis: anthropology)

80F United States Foreign Policy (4) F

Lecture and discussion, three hours. Stresses the changing international perspectives, policy instruments, and processes of decision making in the six U.S. presidential administrations since 1945. (Emphasis: political science)

80X The Mind of Primitive Man (4)

Lecture, three hours. Various beliefs and institutions of modern society analyzed from the anthropological perspective. A cultural item is understood in this framework when it is placed in the context of its possible alternatives, when its function in relation to other items is described, and when its truth value, if any,

is compared with the scientific point of view. Topics include religion, cults, fads, therapies, subcultures, prejudice, rituals, and how we come to believe, join, and accept these things. (Emphasis: anthropology) Not offered 1977-78.

96 Structures (4)

Introduction to structural models of human thought, language, and social behavior. Mathematics used in these models will be taught and will include abstract algebra, graph theory, and formal languages. Prerequisites: Mathematics 5A-B-C or 2A-B-C. (Emphasis: anthropology, psychology) Not offered 1977-78.

UPPER-DIVISION COURSES

Quantitative Social Science

Courses and modules emphasizing quantitative social science are assigned numbers from 100-109. Courses with related content are grouped together in modules under the same course number so that students may more easily plan a program of study. Usually, courses in a given module may be taken independently, in any order, regardless of the assigned suffix.

100 Quantitative Methods

100A-B-C Social Science Statistics (4-4-4) F, W, S

Lecture, four hours; laboratory, three hours. Presents the statistical concepts and techniques most widely used in social science research and provides a practical experience, via Social Sciences 100D, wherein these are employed. The first two quarters are devoted to descriptive statistics. The third quarter focuses on inferential statistics. Weekly labs employ computer graphics to investigate concepts. Fulfills the social science mathematics requirement. Same as Social Ecology 166A-B-C.

100D Introduction to Survey Analysis (4) S

Seminar, three hours; laboratory, two hours. Student research teams analyze survey-generated data using the techniques from 100A-B-C. Students present their results at a symposium for that purpose. Concurrent enrollment in Social Sciences 100C is required. Same as Social Ecology 166D.

100E A Probabilistic World (4)

Seminar, three hours. Preparing and testing materials for teaching basic probability. A basic course for those who have some positive experience with math or computers and who like to understand things thoroughly. Not designed for those thoroughly acquainted with probability unless they are good programmers or have strong interest in making formal ideas accessible to others. Not open to students currently taking Mathematics 5C. Not offered 1977-78.

100F-G Advanced Mathematical Methods (4-4)

Current quantitative techniques used by social scientists not covered in introductory courses: factor analysis, multidimension-

al scaling, partial, multiple, and hybrid correlational measures, measures of the strength of a statistical relationship, the logic of testing a mathematical model with unknown parameters, introduction to measurement in the social sciences, elementary stochastic processes, difference equations, and graph theory. Prerequisites: Mathematics 5A-B-C or 2A-B-C and a mathematics or quantitative methods course. Not offered 1977-78.

101 Analysis of Data

101A-B-C Data Analysis I, II, III (4-4-4) F, W, S

Lecture, three hours. Practical applications-oriented course on multiple regression. How to discover and explore general socio-economic models in your data. Prerequisite: simple probability and statistics.

101D-E Econometrics I, II (4-4) F, W

Lecture, three hours. Specification of mathematical models in social science. Single equation models and linear regression. Prerequisite: Mathematics 6A, 3A, or consent of instructor. (Emphasis: economics)

101F-G Techniques of Data Collection and Analysis (4-4) F, W

Lecture, three hours. Basic methods and theories of similarity data collection. Includes: survey of data collection methods, the choice and design of data collection instruments, collection of data from one semantic domain by several methods (e.g., item-by-use matrices, sorting, triads). Prerequisites: Mathematics 5A-B-C or consent of instructor.

107 Quantitative Political Science

107A Quantitative International Relations (4)

Lecture and discussion, three hours. The use of quantitative methods in the study of international relations is demonstrated through lectures, solving of simple problems, student seminar papers, laboratory experiments, and simulation games. Prerequisite: one year of college mathematics or consent of instructor. (Emphasis: political science) Not offered 1977-78.

107B Politometrics (4)

Lecture and discussion, three hours. Lectures, home problems, and laboratory on measuring and model-building techniques. Prerequisite: one year of college mathematics or consent of instructor. (Emphasis: political science) Not offered 1977-78.

107C Growth and Competition Equations (4)

Lectures, discussion, and problems on exponential and logistic growth, arms races, mutual annihilation, and cooperation. Prerequisite: one year of college mathematics or consent of instructor. (Emphasis: political science) Not offered 1977-78.

107D Seats and Votes (4)

Lecture, two hours; laboratory, one hour. A worldwide survey of electoral laws and their political consequences. Facts and theories about the U.S. elections: campaign resource allocation strategies; penalties on small states and parties; law of minimum winning coalitions; effect of the Electoral College. Prerequisite: one year of college mathematics or Mathematics 6B or consent of instructor. (Emphasis: political science) Not offered 1977-78.

Economic and Geographical Analysis

Course modules emphasizing economic and geographical analysis are assigned numbers from 110-119. Courses with related content are grouped together in modules under the same course number so that students may easily plan a program of study. Usually, courses in a given module may be taken independently, in any order, regardless of the assigned suffix.

111 Economic Theory

111A-B Microeconomics I, II (4-4) F, W

Lecture, three hours. Fundamentals of price theory; determinants of supply and demand; operation of competitive and monopolistic markets; resource allocations; basic concepts of economic efficiency and of costs and benefits; imperfections of the market system. Prerequisite: Social Science 4 (may be taken concurrently). (Emphasis: economics)

111C Macroeconomics (4) W

Lecture, three hours. Analysis of the factors which influence unemployment, inflation, recessions, and depressions, and the public policy measures available for dealing with these problems. Prerequisite: Social Science 4. (Emphasis: economics)

111D Flow of Funds Analysis (4)

Lecture, one and one-half hours; seminar, one and one-half hours. Analytical description of flow of funds accounts in U.S. economy. Prerequisites: Social Science 111A-C. (Emphasis: economics)

111E Individual Decision Making (4) S

Lecture, three hours. Consideration of the problems associated with decision making under uncertainty. Discussion of the foundations of modern utility theory, random variables, probability distribution, opportunity loss, the value of perfect information, and Bayes' theorem. Prerequisite: Mathematics 5A. (Emphasis: economics, psychology)

111G International Trade and Commercial Policy (4) W

Lecture, three hours. Determination of trade flows and international prices. Effects of trade on income distribution and welfare. Economic growth and the terms of trade. Trade restrictions and effective protection. Economic integration, common markets, and commercial policies of the United States and European Economic Community Trade and Development: policies of GATT (General Agreement on Trade and Tariffs) and UNCTAD (United Nations Commission on Trade and Development). Prerequisite: Social Science 111A-B. (Emphasis: economics)

111J The Economics of Risk and Uncertainty (4) F

Lecture, three hours. The theory of insurance and joint-ownership of risky enterprises; optimal procedures for the allocation of uncertain payoffs. Prerequisites: Social Science 111A-B. (Emphasis: economics)

111K Economics of Pollution (4)

Lecture, three hours. Economic approaches to understanding

and solving pollution problems. The nature and causes of air, water, and chemical pollution, and technological methods of control. Economic externalities, kinds of pollution taxes, cost-benefit analysis, public goods, relationship between pollution and GNP. Related legal, political, and international factors. Prerequisite: one course in economics. (Emphasis: economics) Not offered 1977-78.

111L Portfolio Selection and Capital Market Theory (4) S
Lecture, three hours. Optimal design of portfolios based upon mean-variance characteristics. An examination of the efficiency of present day capital markets. Prerequisites: Social Science 111A-B or consent of instructor. (Emphasis: economics)

111M Industrial Organization (4)
Lecture, three hours. A policy approach to a study of the structure of American industry. Prerequisites: Social Science 4A-B. (Emphasis: economics)

111N Evolutions and Economics of the Multinational Firm (4)
Lecture, three hours. A survey of the activities of multinational firms since World War II with an emphasis on the effects of direct foreign investment on the economies of underdeveloped countries. Prerequisites: Social Science 4A-B. (Emphasis: economics)

111S-T-U Economic Analysis of Government Behavior I, II, III (4-4-4) F, W, S

Lecture, three hours. Demand for and supply of government activities. Analysis of individual and group behavior and choice of instruments to influence governments. Analysis of parties; legislative, executive, and bureaucratic behavior in the supply of governments. Role of constitutional codes. Special topics: regulation, public production, taxation, federalism. Prerequisite: Social Science 4A. (Emphasis: economics)

111V-W Advanced Microeconomics Theory I, II (4-4) F, W
Lecture, three hours. A presentation of basic neoclassical economic theory, relying heavily upon formal mathematical methods. Prerequisites: Social Science 4A; Math 2A-B-C or equivalent. (Emphasis: economics)

112 Labor Economics Theory

112B The Economics of Discrimination (4)
Lecture, three hours. Examination of differential wage rates between races. Prerequisite: Social Science 4. (Emphasis: economics) Not offered 1977-78.

112D Labor Economics (4)
Lecture, three hours. This course will focus on the role played by labor in the production and distribution of goods and services in an economy such as we have in the United States. A particular concern will be the analytical framework used by economists to investigate labor's role in the economy. This analytical framework will also provide the basis for examining such topics as unemployment, unions, government policy toward labor, wages and inflation, and discrimination. (Emphasis: economics)

112E Economics of Crime I (4) F
Lecture, three hours. A survey of work by economists on the analysis of criminal behavior. Issues of deterrence and differential opportunity will be stressed. (Emphasis: economics)

112F Economics of Crime II (4) W
Seminar, three hours. The economics of crime, stressing original research by students. Prerequisite: Social Science 112E. (Emphasis: economics)

114 Geographical Analysis

114B Natural and Man-Made Networks I (4)
Lecture and seminar, two hours. Emphasis on mathematical structure of network phenomena. Models of network development and operation constructed and tested against empirical examples — highways, subways, pipelines, rivers, etc. Prerequisites: Mathematics 5A-B-C and 6A-B-C. (Emphasis: geography) Not offered 1977-78.

114D-E Transportation Theory (4-4)
Lecture, two hours. Advanced topics in transportation systems analysis and planning; land-use and traffic generation; traffic flow and network theory; transportation impact; transportation policy. Emphasis on theoretical approaches and mathematical models. Prerequisites: Mathematics 5A-B-C and 6A-B-C. (Emphasis: geography) Not offered 1977-78.

114L Urban Policy (4) S
Lecture, three hours. The first quarter of a series of urban policy issues in view of the principles of urban politics and urban administration. Special emphasis will be on transportation problems. (Emphasis: geography)

114M Urban Theory (4) W
Lecture, three hours. Urban theory as it pertains to American metropolitan areas. Location theory, central place theory, and theories of urban land use and social areas. Prerequisite: Social Science 114L or consent of instructor. (Emphasis: geography)

114N Urban Analysis (4) F
Lecture, three hours. Analysis of urban activity systems combined with an in-depth study of one Southern California community encountering social and economic change. Focus on the applicability of various theories of urban structure. Economic base studies, demography, and social area analysis. Prerequisite: consent of instructor. (Emphasis: geography)

Society, Politics, and Social Issues

Course modules emphasizing society, politics, and social issues are assigned numbers from 120-129. Courses with related content are grouped together in modules under the same course number so that students may easily plan a program of study. Usually, courses in a given module may be taken independently, in any order, regardless of the assigned suffix.

121 Western World Society and Politics**121A The American Community in Crisis (4) W**

Lecture, three hours; optional discussion, one hour. General analysis of politics of the urban community. Main themes: analysis of various conceptual frameworks for the study of local political systems; examination of the attempt of the local political system to govern; nature of local-federal government relationship. (Emphasis: political science)

121C Presidents, Bureaucrats, and U.S. Foreign Policy (4) W

Lecture and discussion, three hours. Presents the bureaucratic aspect of American foreign policy, including institutional relationships, bureaucratic processes, and personalities that affect the decision making process. Prerequisite: Social Science 80D or consent of instructor. (Emphasis: political science)

121E Modern Democratic Theory (4) W

Lecture, three hours. An examination of contemporary theories of democracy. Some of the major questions to be considered are: What is democracy? What accounts for its stability or persistence? What is the meaning and role of participation in democratic theory? (Emphasis: political science)

121F French Politics and Society (4) F

Seminar, three hours. A general overview of the nature of French politics and society. Some of the basic literature on France will be read and students will select a topic of particular interest to them. Students with a reading knowledge of French particularly welcome. (Emphasis: political science)

121H Research Seminar on French Politics and Society (4)

Seminar, three hours. This course is designed to provide students with an opportunity to develop a sophisticated understanding of an aspect of French society or politics which interests them. At the same time, they will learn how to conduct political science research. Each student will select a social unit (e.g., family, primary school, or political party) in the context of which the student will examine the nature of authority. Prerequisite: Social Science 121F or consent of instructor. (Emphasis: political science) Not offered 1977-78.

121L Political Thought since Hobbes (4) F

Lecture, three hours. Political thought since Hobbes, with particular attention to the principal themes of Hobbes, Kant, Rousseau, Marx, and Nietzsche. Short introductory lectures dealing with the historical setting and relevant biographical data will be combined with discussions and assignments, using an approach that is primarily analytic and thematic. Emphasis on defining and articulating the student's own political values — their identity, their sources, their consequences — in connection with these classical statements of political values. Prerequisites: upper-division standing. (Emphasis: political science)

121N Models of Collective Decision Making (4) S

Lecture, three hours. This course will examine mathematical models of group dynamics, decision making, and coalition function in groups such as juries, legislatures, and cabinets. In addition,

the course will deal with mathematical models of the dynamics of electoral systems and of the behavior of political parties. The primary focus will be empirical, but normative issues will also be raised, in particular, the problem of defining what is meant by the "public interest." Prerequisite: one year of college algebra. (Emphasis: political science)

122 Eastern European Society and Politics**122A Soviet Society and Politics I (4) F**

Lecture, three hours; seminar, one hour. Overview of the Soviet socio-political structure, based on Western texts and on the current Soviet press. (Emphasis: political science)

122B Soviet Society and Politics II (4)

Lecture, two hours; discussion, two hours. Homework problems of a quantitative nature. Prerequisite: Social Science 50C. (Emphasis: political science) Not offered 1977-78.

122C Czechoslovak Democratic Culture (4) S

Lecture and discussion, three hours. Three times in this century the Czechs and Slovaks have synthesized from their background as "center of Europe" a political economy and culture which is of value for comparison with other advanced industrial societies. Plays, films, political programs, translated newspaper articles, and economic reform plans studied. (Emphasis: political science, economics, sociology)

123 Third World Society and Politics**123B U.S.-Mexican Foreign Relations (4) F**

Lecture and discussion, three hours. Changing pattern of hemispheric relations in the political, military, and economic spheres, including political alliances, trade patterns, the transfer to technology and capital, economic and military assistance, radical critiques of imperialism and underdevelopment, and the expanding role of nonhemispheric countries in Latin America. Prerequisites: Social Science 80C and 80D or consent of instructor. (Emphasis: political science)

124 Participation and Mass Communication**124A Comparative Communications Systems (4) F**

Lecture, three hours. Comparison of current communication practices in science, the mass media, and the American intellectual community. A general theory to explain differences in the diversity, bias, and the general quality level of such communication systems will be considered. (Emphasis: political science, sociology)

124B Alternative for the Mass Media (4-4) W, S

Lecture, three hours. Criticisms, defenses, and proposed changes in the mass media, especially a particular change that would radically increase citizen participation and control. Readings are a general survey of literature on mass communications. (Emphasis: political science, sociology)

124C Radical Social Proposals (4-4) W, S

Lecture, three hours. An examination of certain current proposals for alternative political and economic systems, especially proposals aimed at increased citizen participation and control,

and at much more equal distribution of wealth. Some consideration of the problems in current countries that motivate such proposals, and examples such as present day China, which tend to inspire them. Prerequisite: upper-division standing. (Emphasis: political science, sociology)

124D American Society and Politics: The Minority (4) W
Lecture, three hours. Assists the student to develop techniques and locate information that will help in monitoring and analyzing the public policy process. Attention to minority populations of Orange County. Policy issues discussed will include: census data, employment, education, housing, health and welfare, revenue sharing. (Emphasis: political science)

124H City Politics: Ideology, Conflicts, and Democracy in Urban and Suburban Settings (4) S
Lecture, three hours. Based on case-studies of Eastern and Western American cities, the course attempts to determine the nature of urban politics. Emphasis will be placed on the selection of urban municipal elites, the structure of decision making, and the role of pressure groups and minority groups. (Emphasis: political science)

Cultural and Cognitive Anthropology

Course modules emphasizing cultural or cognitive anthropology are assigned numbers from 130-139. Courses with related content are grouped together in modules under the same course number so that students may easily plan a program of study. Usually, courses in a given module may be taken independently, in any order, regardless of the assigned suffix. NOTE: Students wishing to complete a module in the anthropology series may do so by taking any three of the upper-division anthropology courses.

131 Anthropological Theory

131A Kinship and Social Organization (4) W
Lecture, three hours. Organization of social life primarily in pre-industrial societies. Theories of kinship, marriage regulations, and social roles. Comparisons of psychological, sociological, and economic explanations of social organization. (Emphasis: anthropology, psychology, sociology, economics)

131E Economic Anthropology (4) F
Lecture, three hours. The anthropological study of systems for production, distribution, and exchange of goods and services. Topics include: cultural rules for appropriate economic behavior; exchanges of ceremonial goods; primitive money; and the ethnographic study of American economic behavior. Prerequisite: one introductory course in general social science, anthropology, economics, or geography. (Emphasis: anthropology, economics)

131F Psychological Anthropology (4) W
Lecture, three hours. Children of different cultures often have radically different experiences with adults, other children, and

their physical environment which produce differences in what is learned, felt, and believed. Psychological anthropology is the study of these differences in experience and their consequences for the psychology of the adult. Prerequisite: Social Science 2 or 7. (Emphasis: anthropology, psychology)

131G Cognitive Anthropology (4) S
Lecture, three hours. Focuses on individual and cultural differences and similarities in the categorization and organization of semantic structures. Relation of variations in these conceptual structures to other systems of behavior. (Emphasis: anthropology)

131H Problems in the Design of Small-Scale Self-Sufficient Communities (6) F
Lecture, three hours; discussion, one hour; field, two hours. Physical and social problems involved in the design of small-scale self-sufficient communities considered. Review of both ethnographic information of patterns of adaptation used by our species during its history on this planet and related processes and techniques developed in modern science and engineering. (Emphasis: anthropology)

131J Anthropology and the Future World (4-4) F, W
Lecture, three hours. A critique of Western society and the direction it is going, from a new viewpoint based on findings in clinical psychology as well as on studies of cultural evolution. Special emphasis is given to examining existing and alternative life styles in families, schools, television, and communities. (Emphasis: anthropology, psychology)

131M Cultures of Sub-Saharan Africa (4) S
Lecture, three hours. Comparative studies of the cultures and societies of Sub-Saharan Africa, with emphasis on ecological adaptations, social organization, languages, and social change. Prerequisite: Social Science 2A or 2B. (Emphasis: anthropology)

136 Iconics

136A The Study of Symbols and Designs (4) F
Lecture, three hours. An introduction to iconics, the study of graphic or two-dimensional "languages." A close look at such iconic "languages" as Chinese characters, Nevada cattle brands, Mayan design motifs, pottery patterns, ancient alphabets, devil signs, etc. How to arrive at a deeper understanding of such languages by constructing their "grammars" — sets of rules for generating them. (Emphasis: anthropology)

136B Advanced Iconics (4) W
Lecture, three hours. The further study of two-dimensional "languages." Full-scale "grammars" for such languages will be discussed; these generative characterizations used to try to understand how such languages evolve in time and how they are realized in our minds. Early history of the archaic ancestors of the "English" alphabet, including epichoric variations and evolution through "mistakes," with comparison to the mistakes made by children. Prerequisite: Social Science 144A. (Emphasis: anthropology, psychology)

136D The Human Response to the Man-Made Environment (4) S

Lecture, three hours. Can Southern California be survived? This course investigates ways in which people react to living in a world that is largely man-made. Two opposing perspectives will be developed: that of Ruskin (i.e., environment should create pleasurable associations) and that of Viollet-le-Duc (i.e., environment should respond mechanically to the availability of materials). Topics will include comparative studies of architecture, freeways, cities, campuses, and shopping centers. The class will collaborate on evaluating and redesigning some aspect of the local environment. (Emphasis: anthropology, psychology)

136E Arts as Sciences (4) F

Lecture, three hours. The language arts of literature, theater, and the movies have always been of interest to the social scientist because they reflect, hyperbolize, clarify, and sometimes cause human behavior. Sociologists study how social and ethical views are reflected in novels; psychologists study the effect of horror movies and movies of violence; both study how war is depicted in the movies and literatures of various periods; and so on. This course will take up central themes embodied in literature, the movies, or both. Prerequisite: sophomore standing.

Cognitive Linguistics

Course modules emphasizing cognitive linguistics are assigned numbers from 140-149. Courses with related content are grouped together in modules under the same course number so that students may easily plan a program of study. Usually, courses in a given module may be taken independently, in any order, regardless of the assigned suffix. *Note:* Students wishing to complete a module in the cognitive linguistics series may do so by taking any three of the upper-division cognitive linguistics courses.

141 Linguistic Theory**141A Introduction to Syntax (4) F**

Lecture, three hours. Development of notions of linguistic intuition, well-formedness, constituent structure, transformation, derivation, argument, and counter-example through discussion of different natural language phenomena. Emphasis on English syntax and what characterizes a linguistically significant generalization. Prerequisite: Social Science 3 or Linguistics 50. (Emphasis: cognitive linguistics)

141B Intermediate Syntax (4) W

Lecture, three hours. Continuation of Social Science 141A. Further topics in English syntax and theory of grammar. Constraints on what linguistic rules can do. The relationship between linguistic theory and language learning. Prerequisite: Social Science 141A. (Emphasis: cognitive linguistics)

141C Advanced Syntax (4) S

Lecture, three hours. Continuation of Social Science 141B. A small number of well-defined topics will be pursued intensively,

with particular emphasis on recent articles that have had significant impact on the development of the theory of syntax. Prerequisite: Social Science 141B. (Emphasis: cognitive linguistics)

141D Semantics (4) F

Lecture, three hours. Analysis of various proposals for the treatment of semantics in an integrated linguistic theory: Katz, Lakoff, Jackendoff, McCawley, Chomsky, etc. The boundary between syntax and semantics. Interpretivism, lexicalism, and generative semantics. Coreference phenomena. Contributions from philosophy of language: Austin, Searle, etc. (Emphasis: cognitive linguistics)

142 Psycholinguistics**142A Introduction to Psycholinguistics (4) W**

Lecture, three hours. Study of a particular topic in the psychology of language with particular emphasis on syntax and semantics. Prerequisite: Social Science 50A or a course in linguistics, or consent of instructor. (Emphasis: cognitive linguistics)

142D Project in Child Language (4) S

Seminar, three hours. Begins with an intensive review of previous work on child language in which problems and methodology are discussed: projects specified. Remainder devoted to the projects and to discussing the problems and results which arise from doing them. Prerequisite: Social Science 50A or consent of instructor. (Emphasis: cognitive linguistics, psychology, anthropology, sociology)

Individual and Small Group Behavior

Course modules emphasizing individual or small group behavior are assigned numbers from 150-159. Courses with related content are grouped together in modules under the same course number so that students may easily plan a program of study. Usually, courses in a given module may be taken independently, in any order, regardless of the assigned suffix.

151 Experimental Psychology**151A-B-C Experimental Psychology I, II, III (6-6-4) F, W, S**

151A Experimental Psychology I Lecture, three hours; laboratory, one hour. Emphasis on design of experiments and the analysis of results obtained. Advantages and disadvantages of within subjects, between subjects and mixed designs, control of experimental error, and related topics. Experiments in laboratory sections evaluated and discussed. **151B Experimental Psychology II** Lecture, two hours; laboratory, three hours. Laboratory work and class experiments emphasized. Related experiments discussed, as well as the general content of each area in which a class experiment is conducted. Student proposals for independent research prepared and evaluated. **151C Experimental Psychology III** Laboratory, three hours; seminar, two hours. Independent research projects discussed. Students encouraged to evaluate each other's research plans. Each student will complete

a project in experimental psychology, analyze the data, and prepare a report of the findings. Attention devoted to technical and ethical issues in psychological research. Prerequisites: Social Science 7 and one college-level mathematics course; successful completion of 151A-B. (Emphasis: psychology)

151D Visual Experience (4) W

Lecture, three hours. Focus on facts about vision that can be appreciated directly by simply looking at things. Emphasis on demonstrations and miniature experiments. Potential topics: visual acuity, color vision, memory and after images, visual reaction time, depth perception, adaptation to distortion of visual output. Prerequisite: senior standing preferred. (Emphasis: psychology)

151E Learning Theory (4)

Lecture, three hours. Investigation of the learning and memory processes of humans and animals. Basic experimental approaches to learning, empirical results, and theoretical interpretations of the evidence. Prerequisite: Social Science 7. (Emphasis: psychology)

151F Visual Information Processing (4)

Seminar, three hours. Topics in current vision research, e.g., short term visual storage, eye movements, temporal image development, adaptation, perceptual anomalies. Prerequisites: Mathematics 5A-B-C or 2A-B-C; Social Science 151D, or 151A-B-C, or consent of instructor. (Emphasis: psychology)

151L Computers in Psychological Research (4)

Lecture and laboratory, three hours. An overview of the use of computers in psychology. Computations, generating displays, testing implications of models, computer models of behavior, brain simulation, heuristic programming, and simulation of complex information processing. Prerequisite: Social Science 7, Information and Computer Science 1, or consent of instructor. (Emphasis: psychology) Not offered 1977-78.

151N Human Memory (4) S

Lecture, three hours. This course will present a number of developments in the area of memory. The first half of the course will discuss the history of memory research as well as theories of the nature of memory. Among the topics covered will be visual memory, recognition memory, high speed scanning, free recall, short-term memory, mnemonics, and retrieval, and the relationship of memory to thinking. The second half of the course will focus on selected theoretical formulations for memory. Mathematical, information processing, and computer models will be considered. Prerequisites: Social Science 7 and Mathematics 5A-B or consent of instructor. (Emphasis: psychology)

151R History of Psychology (4) S

Lecture, two hours; discussion, one hour. A history of the development of various schools and systems of psychological thought. Prerequisite: Social Science 7. (Emphasis: psychology)

152 Children

152A-B-C Creative Learning in Children (4-4-4) F, W, S

Seminar, two hours; fieldwork, six hours. Students assist in

teaching children at the Farm School, recording and studying their interactions with the children, and developing materials for use in the School. The Farm School is ungraded and the children range in age from five to twelve. Students in any major are eligible for the course. We are particularly interested in students who know something — like programming, music, biology, mathematics, Spanish, improvisational dance, etc. — and care about it. (Emphasis: psychology, sociology)

152G Child Development I: Infancy and Early Childhood (4) F

Lecture, three hours. A study of the development of the child in infancy and early childhood. Analysis and interpretation of research, theory, current controversies, trends, and techniques for study of the child and the family unit within the community setting. (Emphasis: psychology)

152H Child Development II: Middle and Late Childhood; Pre-Adolescent Development (4) W

Lecture, three hours. Behavior and development in middle and late childhood with emphasis on the family and community setting. Theory, current research, and techniques for effectively working with this age group. (Emphasis: psychology)

152I Child Development III: Adolescence and Early Adulthood (4) S

Lecture, three hours. Discussion of theoretical and empirical analysis of selected topics in the individual and social behavior of the adolescent and early adult. Research, current studies, and theories applicable. (Emphasis: psychology)

153 Rules and Decision Strategies

153B Games (4) F

Lecture, two hours; discussion, one hour. Games as analogies of social, economic, and political situations. The interaction of contingency plans. Games (situations) with no winner and/or loser. Technical definition and discussion of conflict, threat, stability. Paradoxes involved in defining "rational decision." Prerequisite: one year of mathematics. (Emphasis: psychology)

153C The Psychology of Chess (4) S

Lecture, three hours. Reviews recent psychological literature on chess and gives chess demonstrations of the points made. Included are the psychoanalysis of chess players, artificial intelligence, chess programs, the relationship of eye movements to chess thinking, perception and memory of the chess master, blindfold chess playing, and the relationship of chess thinking to more general problem solving. Students should know chess. Prerequisite: consent of instructor. (Emphasis: psychology)

153D Human Problem Solving (4) W

Lecture, three hours. Modern developments in the psychology of human problem solving. Among the topics considered: concept identification, arithmetic, sets, logic puzzles, story problems, group problem solving, chess, and theorem proving. Prerequisites: Social Science 7 and upper-division standing. (Emphasis: psychology)

153F Simulation and Games (4) W

Lecture, three hours. A seminar to develop heuristic-based com-

puter programs capable of playing a number of familiar games such as Monopoly, Clue, and Risk. Appropriate mathematical skills, e.g., game theory, graph theory, Markov chain theory, will be taught as needed. Students will work in teams to develop a program capable of playing one of these games with minimal sophistication. Prerequisites: Mathematics 2A-B-C and Information and Computer Science 1. (Emphasis: psychology)

153G Motivation (4)

Lecture, three hours. Factors affecting the behavioral performance of organisms. A survey of theoretical and empirical approaches to the physiological, psychological, and social factors which generate behavior. Prerequisite: Social Science 7. (Emphasis: psychology)

154 Personality Theory

154A-B-C Personality Theory in the Twentieth Century (4-4-4) F, W, S

Lecture, three hours. An overview of the evolution of personality theory during the present century. The first quarter will be addressed to the classical theories of Freud, Jung, and Janet. The second quarter will focus on the cultural, learning theory, and psychometric formulations. The third quarter will survey the various forms that a renewed interest in the body has taken over the previous decade. Prerequisite: upper-division standing. (Emphasis: psychology)

154D-E Theories of Personality (4-4)

Lecture, three hours. Non-Freudian theories of personality: existentialist, behaviorist, and communication. Advanced personality theory. (Emphasis: psychology)

155 Social and Personal Adjustment

155A Theories of Deviance (4)

Seminar, three hours. Perspectives on deviance and criminality in behavior, institution, community, and myth. The suitability of contemporary theories of deviant behavior. (Emphasis: sociology) Not offered 1977-78.

155B Abnormal Psychology (4) W

Lecture, three hours. Introduction to psychopathology and behavioral deviations, and the concepts and theories regarding these conditions. Prerequisite: Social Science 7. (Emphasis: psychology)

155D Psychology of Awareness (4) S

Lecture, three hours. A survey of the ways in which psychopathology limits and distorts awareness. Prerequisite: Social Science 7. (Emphasis: psychology)

Social Interaction

Course modules emphasizing social interaction are assigned numbers between 160-169. Courses with related content are grouped together in modules under the same course number in order to aid students in planning their programs of study. Normally, courses in a given module may be taken

independently, in any order, regardless of the assigned suffix.

161 Communication and Social Presentation

161A Personality Impression Formation (4) F

Lecture, one and one-half hours; discussion, one and one-half hours. Exploration into the body of knowledge concerning how we form, maintain, and change judgments of people. Prerequisite: upper-division standing. (Emphasis: psychology)

161B Sociological and Psychological Aspects of Communication (4)

Lecture, three hours. An analysis of human communication, its pathologies, and its regularities. (Emphasis: sociology, psychology)

161K Social Change (4)

Lecture, two hours; discussion, one hour. Different theories of social change will be presented including Marx, Weber, and evolutionary and cyclic theories. These theories will be used to examine recent changes in industrialized societies, e.g., the growth of the state, the status of minority groups and women, the search for intimacy and community. (Emphasis: sociology)

Special Courses – Upper-Division

180 Upper-Division Special Topics

180C Exploring Society Through Photography (4) S

Lecture, three hours. Students will explore society through presentation, interpretation, and discussion of their own photographs. A few common exercises at the beginning of the quarter will be followed by individual projects. Photography as social observation and the relation of photographs in an essay will be stressed. Prerequisite: basic photo techniques. (Emphasis: anthropology, sociology)

180P Delusional Thought (4)

Lecture, two hours; discussion, one hour. Various types of delusional thought from other cultures and our own are analyzed with respect to how they interrelate with the everyday life of the believers of the delusions. (Emphasis: psychology, sociology)

180T Problem Drinking and Alcoholism (4) W

Lecture, three hours; discussion, one hour. A review of the literature in the field, including patterns of alcohol use and abuse and their relation to sociocultural, personality, developmental, and treatment variables. Emphasis will be placed on theories of etiology and treatment. (Emphasis: psychology, sociology)

180X The Cross-Cultural Study of Learning and Thinking (4) F

Lecture, three hours. Recent cross-cultural research on learning and thinking and discussion of the benefits and limitations of cross-cultural experiments. (Emphasis: anthropology, psychology)

185 Advanced Seminars

185E Urban Policy Problems (4) S

Seminar, three hours. Problem-oriented approach to urban politi-

cal systems. Evaluation of the nature and quality of alternative analyses of a series of policy problems, such as low-cost housing, welfare policy, municipal transportation, law enforcement, community control, etc. Readings include "conservative" and "radical" perspectives. Prerequisite: consent of instructor. (Emphasis: political science, sociology, economics)

190 Senior Thesis

197 Field Study

198 Group Independent Study

199 Independent Study

Prerequisite: School approval.

GRADUATE COURSES

200A-B-C Current Research in Anthropology (4-4-4) F, W, S

Seminar, three hours. Research seminar in which a number of anthropologists present and discuss their current research. A core course for first year graduate students in anthropology.

201E Seminar in Social Structure (4) F

Seminar, three hours. Alternative theoretical approaches and research strategies for examining topics such as stratification, modernization, and socialization. Readings will include Marx, Weber, Dahrendorf, Sahlins, and Lenski.

204A-B-C Sociobiology as a Life Science (4-4-4) F, W, S

Seminar, three hours. The world of everyday life considered as a sociobiological phenomenon. An interdisciplinary attempt to link the social and the life sciences by finding a language that encompasses both. Findings from psychobiology considered, as well as findings from cybernetics, systems, existential psychiatry, and ethnomethodology. Prerequisite: graduate standing or consent of instructor.

205 T.V. Guide (4)

Lecture, one hour; laboratory, two hours. Students learn to use portable videotape equipment in social science research, then devise and carry out research projects. Previous projects include: constructing a stereoscopic T.V. system; videotapes that create visual illusions; videotaping of scientific meetings; videotape studies of personal space; videotape studies of information content of commercial T.V. Prerequisite: consent of instructor. Not offered 1977-78.

205C Seminar on Alcohol and Behavior (4) W

Seminar, three hours. The effects of alcohol on behavior, with emphasis on memory and related areas. Primary attention given to research results and research potential. What studies have been done and what studies need to be done? Each student will select one area to review. Previous familiarity with the topic is not required.

209A Social Movements and Public Policy (4) W

Seminar, three hours. Several recent changes in the U.S. have resulted from the interaction of a social movement, a new ideology, and government policies. This seminar will focus on how

these factors have changed the status of women. Changes in the status of minority groups will also be considered.

211 Social Issues Seminar: Citizen Participation (4) S

Seminar, three hours. An examination of fundamental social issues. These issues derive from a basic concern about the concepts of power authority and value allocations, as these concepts relate to public policy, to organization, to participation, and to relationships within and between social and political units. Each year the seminar will develop a particular substantive focus.

214A The Design of Field Research (4)

Seminar, three hours. A seminar on basic issues in the design of field research for anthropologists and other social scientists. Special attention will be given to problems of preparing dissertation proposals and applications for research grants. Not offered 1977-78.

215A Topics in Modern Social Theory (4) F

Seminar, three hours. Selected theoretical perspectives and controversies in modern social theory, treated in the context of the intellectual traditions from which they derive. This year's seminar will focus on the sociology of knowledge and related issues in the philosophy of social science.

218A Seminar in Structuralism and Semiotics (4) W

Seminar, three hours. The seminar will take a fresh look at structuralism and semiotics and will try to determine whether or not there are some symbolic systems (e.g., myths, designs, food, clothes) that are enough like language to profit from the comparison. Prerequisite: graduate standing or consent of instructor.

226A-B Advanced Experimental Anthropology (4-4) W, S

Seminar, three hours. This seminar will deal with the major topics in experimental anthropology. It will have a heavy anthropological emphasis. Individual research projects will be required from each participant. Prerequisite: consent of instructor.

229 Dream Psychology: Psychotherapy Theory and Research (4)

Seminar, three hours. Consideration of the interrelations of dream research, clinical uses of dreams, and theories of the dream process.

229D Ethnographic Method (4) W

Seminar, three hours. Using the Ixil Maya as a case, various ethnographic approaches and procedures will be discussed. The relevance of different techniques and methods to culture theory will be emphasized.

230 Theories of Psychotherapy (4)

Seminar, three hours. Interrelationships between psychotherapeutic theory and technique. Each student concentrates on one therapeutic orientation. Prerequisite: consent of instructor.

233 Casework in Psychotherapy (4)

Seminar, three hours. A practicum class for graduate students who are seeing patients and have access to videotape equipment. Prerequisites: advanced graduate standing and consent of instructor.

- 236A-B-C Proseminar in the Cognitive Sciences (4-4-4) F, W, S**
Seminar, three hours. Year-long intensive introduction to the conceptual foundations and basic research results in the cognitive sciences for first-year graduate students. Prerequisite: graduate standing or consent of instructor.
- 238 Organizations (4) S**
Seminar, three hours. A seminar in intra- and inter-organizational processes focusing on organizational problems in adapting to technological, cultural, and environmental change and uncertainty, and how pygmies hunt elephants in the Ituri forest.
- 240A-B Mathematical Models of Cognitive Processes I, II (4-4) F, W**
Lecture, three hours. Mathematical models of various cognitive processes that have been developed mostly since 1960, including learning, memory, perception, psycholinguistics, and problem solving. Models are formulated in different mathematical languages: calculus, algebra, logic, probability, and computer. Difficulties in testing and validating models discussed. Prerequisite: graduate standing or consent of instructor.
- 241A Introduction to Mathematical Statistics (4) F**
Seminar, two hours. Probability spaces, random variables, random sampling, maximum likelihood estimation, central limit theorems, hypothesis testing. Prerequisite: calculus or elementary statistics.
- 241B Analysis of Variance and Experimental Design (4) S**
Seminar, three hours. This course will discuss the logic of experimental design and inferential statistics. We will present some of the mathematical ideas behind inferential statistics and analysis of variance; however, the main emphasis will be on understanding the ideas at a usable level rather than mathematical formalism. Prerequisite: graduate standing or consent of instructor.
- 241C Mathematical Linguistics (4) W**
Seminar, three hours. Formal languages and their relationship to abstract machines. Learnability of families of languages under various conditions of input information and processing capability. Prerequisite: graduate standing or consent of instructor.
- 241E Algebraic Theories in the Social Sciences (4) F**
Seminar, three hours. Various applications of abstract algebra to the social sciences will be explored. The unifying mathematical framework will be categorical algebra including such basic ideas as category, functor, natural transformations, and universality. Examples will be drawn from such areas as pattern recognition (group theory), formal languages and social relations (semigroups), and the general problem of inducing structure from behavior (data). This course requires some mathematical maturity, but no specific knowledge. Prerequisite: graduate standing or consent.
- 242A-B-C Research Methodology (4-4-4) F, W, S**
Seminar, three hours. Seminar to help students focus on their dissertation topics and to help the instructors audition their current research interests. Graduate students at all levels and instructors make presentations describing their ongoing work.
- 243A-B-C Research Seminar in Mathematical and Experimental Social Science (4-4-4) F, W, S**
Seminar, two hours. Weekly reports and colloquia by faculty, students, and outside visitors. Prerequisite: admission to graduate program in Cognitive Science or consent of instructor. (Emphasis: psychology, economics)
- 246B-C Formal Theories of Roles and Social Relations (4-4) W, S**
Seminar, three hours. This course will examine a broad range of social interactions including ordinary kinship, ritual kinship, friendship, authority, group decision making, feuding, and various "sick" roles such as that of the alcoholic. The mathematical theories of graphs, groups, semigroups, categories, and linear systems will be used to elucidate the concept of role and relation in these substantive areas. Analysis will be made on the "local" (individual), "global" (groupwide), and "galactic" (intergroup comparisons) level. Prerequisite: graduate standing or consent.
- 247A Inequality in Rural Societies (4) W**
Seminar, three hours. Social inequality (stratification) in small communities in the Third World with emphasis on the interaction of stratification systems and socio-economic change. Class sessions will include orienting lectures, discussions, and presentation of research results. Prerequisite: graduate standing or consent of instructor.
- 248 Models of Collective Decision Making (4) S**
Seminar, three hours. This course will deal with mathematical models of decision making and communication processes, focusing on small group applications such as juries, legislative committees, courts, etc. Prerequisites: Social Science 11A-B or equivalent.
- 271D Cross-Cultural Research on Cognition (4) F**
Seminar, three hours. Current research on cognition using cross-cultural methodology will be the focus of this seminar. Both the cultural concomitants of cognitive skills and their development over time will be explored. Each student will prepare a paper in the form of a research proposal which surveys existing work in some subarea and formulates a new research problem. Prerequisite: graduate standing or consent.
- 274 Empirical Democratic Theory (4)**
Seminar, three hours. An examination of contemporary political science and sociological research designed to analyze the nature of democratic government and to account for the stability and persistence of such regimes. Readings will include, but not be limited to, the works of Bachrach, Dahl, Eckstein, Lipset, Pate-man, and Verba. Not offered 1977-78.
- 275 Models of Culture Process (4) F**
Seminar, three hours. A review of the existing theories of culture process in anthropology today and a look at future directions.
- 281 Visual Perception (4)**
Seminar, three hours. General introduction to visual perception for graduate students. Current research topics emphasized. Prerequisite: graduate standing or consent of instructor. Not offered 1977-78.

281H-I-J Electro-optical Instrumentation Related to the Human Eye (4-4-4) F, W, S

Seminar, three hours. In order to perform research on human vision, sophisticated electro-optical instrumentation is often required. Many optical and electro-optical instruments are designed to be used in connection with the human eye, and their design requires an understanding of the properties of human vision. Some of these instruments use the eye as a sensor (e.g., telescopes, fluoroscopes, etc.) and some are used to examine the eye (e.g., ophthalmoscopes, eye movement detectors, etc.). The course will cover basic principles of the design of electro-optical systems and the relevant parameters of the human visual system.

282 Seminar in Semantics and Cognitive Structure (4) F

Seminar, three hours. Concentrates on recent research in semantic and cognitive structure. Prerequisite: some background in linguistics or psycholinguistics.

283A Democratized Institutions and Bureaucracy (4) W, S

Seminar, three hours. Examination of bureaucracy as the common form of administration in modern organizations; and examination of democratization as an alternative. Various existing cases of democratization in America and Europe will be critically researched, such as employee participation in management, worker-ownership, cooperatives, and student participation in governing schools or universities. Also historical theories, proposals, and movements for democratizing entire societies (e.g., "guild socialism," or "the participatory economy") will be analyzed. Prerequisite: graduate standing or consent of instructor.

283B Research Seminar in Workplace Democratization (4) S

Seminar, three hours. Focus on fundamental problems associated with democratizing the workplace. Impediments to efficient decision making, conflicts between expert competence and democratic accountability, limitations on democratic participation imposed by size of the organization, capitalization of worker-owned enterprises, relationship to unions, and social role of the enterprise are the main topics.

284 Postindustrial Social Formations (4) W

Seminar, three hours. Certain trends in technology, corporate power, communications, youth culture, and the human potential movement imply that Western civilization is at a cross-roads. The old society which was ushered in by the Industrial Revolution more than a century ago may now be passing away. This course

will examine emerging possibilities for human organizations, communities, and cultures in the new, postindustrial age. Prerequisite: graduate standing or consent.

286A-B Systems of Belief I, II (4-4) F, W

Seminar, three hours. Approaches to exploring and understanding particular belief systems in unfamiliar cultures.

287A-B Mathematical Anthropology (4-4)

Seminar, three hours. A variety of substantive problems dealt with by anthropologists and what can be done through formalizing this organized complexity, using mathematical, statistical, and computer-based techniques. Models of the structure, process, and evolution of cognitive, social, and ecological aspects of culture considered. Not offered 1977-78.

288 SAGE (4)

Seminar, three hours. (SAGE is a user-oriented LISP-based interactive system for the analysis of verbal materials.) Instruction on the use of SAGE in content analysis, syntactic studies, the study of narrative processes, and semantic analysis. Not offered 1977-78.

292 Research Seminar in Psycholinguistics (4) S

Seminar, three hours. This seminar will consist of informal presentation and discussion of ongoing research in psycholinguistics on the part of the participants. Those people wishing to take the course who are not presently engaged in a research project will design and execute one. Prerequisites: consent of instructor and graduate standing.

293 Linguistic Theory (4) F

Seminar, three hours. An analysis of recent developments in linguistic theory. Discussion will center on the formulation of the goals of linguistic theory and on the use of linguistic data in relationship to these goals. Prerequisites: Social Science 141A or equivalent; graduate standing or consent of instructor.

295 Cybernetics in Language and Culture Studies (4)

Seminar, three hours. A study of basic cybernetic principles and the use of artificial intelligence approaches in the development of culture theory. The major emphasis will be on the design of artificial intelligence systems at a high level (rather than the writing of specific programs). The work of Ashby, Schank, Winograd, and others will be examined. Not offered 1977-78.

299 Independent Study

Independent Programs

This section deals with various programs which do not fall under any of the regular schools at UCI.

Comparative Culture, Information and Computer Science, and Social Ecology are degree programs under the jurisdiction of the Council on Interschool Curricula. The Department of Physical Education does not offer a degree.

Program in Comparative Culture

Joseph G. Jorgensen Director

The aim of the Program in Comparative Culture is primarily to shed light on the forces and processes which have shaped the culture of America. The Program compares systematically the dominant and minority cultures of the United States, as well as Third World cultures, to account for similarities and differences in their participation in, and responses to, the social and cultural processes that have formed the United States in a global context. In order to engage in the comparative study of such highly diverse cultural phenomena, courses in the Program are interdisciplinary, with bases in the social sciences and history as well as in the criticism of literature and the arts. Courses focus on the minority American and Third World cultures that are the specific subjects of study and on a range of comparative techniques of cultural analysis.

Research, teaching, and the unique interdisciplinary formula of the Program are bringing about multicultural communication that extends well beyond the confines of the campus. As part of the Program's ongoing and innovative

research and teaching, students and faculty have undertaken several projects in adjacent communities in which they join with minority and nonminority people working within their own institutions.

Comparative Culture undergraduates, as well as nonmajors, have found the Program to be useful preparation for career opportunities in social service, multicultural and multilingual education, and government. Various emphases selected within the Program can give added depth to graduate or professional work. For those students who seek entrance to law school, an emphasis on political economy and minority relations provides a unique background for specialized legal careers. Graduate study in the social sciences can be facilitated by an emphasis on comparative social inquiry, analysis of oppressed minorities in America, and clinical counseling among minorities, while advanced study in the humanities will be enhanced by a concentration on literature and the arts in their cultural contexts.

Through the Program's student associations, representatives are elected to serve on the Council of Scholars. These student representatives serve, along with elected representatives of the faculty, on the Standing Committees (Executive, Graduate, and Undergraduate) which make regular reports at the meetings of the Council of Scholars. This Council is the deliberative and decision-making body for all policy matters affecting curriculum, recruiting, personnel, and resources.

Degrees

Comparative Culture B.A., M.A.T., Ph.D.

All students will graduate with a degree in Comparative Culture.

Honors

Honors at graduation are based on the overall grade point average and a minimum of five quarters of course work in the Program. The minimum grade point average for honors is a 3.5 on work completed. Of the graduating seniors, 12% may receive honors: 1% *summa cum laude*, 3% *magna cum laude*, and 8% *cum laude*.

UNDERGRADUATE PROGRAM

Requirements for the Bachelor's Degree

University Requirements: See page 20.

Program Requirements

Two introductory Social Science courses (eight units) and junior standing are prerequisites for declaring a major in the Program in Comparative Culture. All majors must complete Comparative Culture 100 (Comparing Cultures) and Comparative Culture 105 (Scope and Problems of Interdisciplinary Studies). Majors are required to select four courses (16 units) from the courses numbered Comparative Culture 120 through 129, which pertain to disciplines related to culture. Majors must also select three courses (12 units) which pertain to specific cultures and/or women's studies from those courses numbered Comparative Culture 150 through 159. In addition, students are also required to complete three courses (12 units) designated as Comparative Culture 195 (Special Topics).

Planning a Program of Study

Students should plan their programs with their faculty advisors and should also consult with the undergraduate academic advisor for quarterly "program checking" and planning. Information regarding professional possibilities and career interests is available through that office.

The Peer Academic Advisor, an upper-division undergraduate in the Program, works closely with the faculty, staff, and especially the Undergraduate Academic Advisor to assist students in identifying and attaining their academic, vocational, and personal goals. Most importantly, the Peer Academic Advisor is a student who is aware of the problems — academic and personal — of university life.

MASTER OF ARTS IN TEACHING IN COMPARATIVE CULTURE

This graduate degree program is designed primarily for those who want to pursue a career in education at the ele-

mentary, secondary, or community college level. M.A.T. students may work concurrently toward a California Teaching Credential, or may be experienced teachers who wish to upgrade their professional preparation. Based upon an interdisciplinary and comparative framework embracing the range of cultures found in the United States, the M.A.T. will prepare its graduates to teach and facilitate the development of multicultural studies in several subject areas. Specifically, our M.A.T. program focuses on the study of Comparative Culture with a special concentration in literature, history, and social sciences relating to various ethnic groups of America. These emphases will be framed by the students' interests and needs with respect to their career goals in the field of education. Since the M.A.T. and Ph.D. programs in Comparative Culture have different goals, the students in the M.A.T. program are not automatically advanced to doctoral training. Students who wish to pursue the doctoral degree in the Program must apply to the Graduate Committee of Comparative Culture.

Requirements for the M.A.T. Degree

Admissions. At the present time applications for the M.A.T. program are not being accepted.

Residence. The minimum residence requirement for the M.A.T. is three quarters.

Required and Elective Courses. In addition to the courses which may be required for the credential, the M.A.T. program will consist of at least nine courses (36 units), six of which must be at the graduate level. Outside of the required three-quarter sequence core course, Multicultural Foundations of Education, each student may establish an individualized program in consultation with the M.A.T. program advisor. The student will develop and carry out an appropriate project in the teaching of ethnic cultures and/or minority students, and submit a report of the project demonstrating an integration of theoretical knowledge and applied skills for the approval of the thesis committee.

Language Requirement. For those who are recommended to acquire proficiency in a second language or alternate skills pertinent to cultural education, additional courses may be required.

PH.D. DEGREE IN COMPARATIVE CULTURE

The doctoral program in Comparative Culture emphasizes study centering on the cultures of the United States, including dominant and minority cultures and their antecedents.

The program is designed to meet the following objectives: to educate interdisciplinary intellectuals, teachers, and research scholars; to study the range of cultures found in America on a comparative basis; to provide the resources in literature, religion, myth, and the arts that will enable some students to become expert comparative analysts of these expressive forms of culture; and to provide the resources in history and social science that will enable other students to become expert comparative analysts of these aspects of culture (referred to as "social inquiry" in the Program). All students, however, will gain interdisciplinary training in both broad areas. Finally, the program is intended to prepare graduate students for academic positions in interdisciplinary programs as well as in departments of humanities and social sciences.

Requirements for the Ph.D. Degree

Admissions. The Program in Comparative Culture admits new graduate students every other year. Students will be admitted in the fall of 1978, 1980, and every other year thereafter. Requirements and standards for admission into the Program are in keeping with those of the University of California as a whole. Students with a B.A. degree will be considered for admission on the basis of past academic performance and present academic interests. In addition to the general application material, Graduate Record Examination Aptitude Test scores are required. Applicants who are admitted to the program begin their study in the fall quarter of the academic year. The deadline for applications is February 1.

Residence. Although the University residence requirement for the Ph.D. is a minimum of six quarters, doctoral students in Comparative Culture must complete three years of course work (108 units). Normally, three courses (12 units) will be completed per quarter.

Required and Elective Courses. The Program requires 27 (108 units) for the doctorate. Courses are selected by the academic advisor to prepare the student for the comprehensive first year examination, the qualifying examination, and the development of a dissertation topic. Proseminar in Expressive Forms (Comparative Culture 205A-B-C) and Proseminar in Social Inquiry (Comparative Culture 261A-B-C) are required of all first-year graduate students. In addition, each student must enroll in three approved electives (12 units) within or outside the Program.

During the second year, Nondominant American Classes and Cultures (Comparative Culture 266A-B-C) and Cross-

Cultural Comparisons (Comparative Culture 268A-B) are required of all doctoral students. Regression-free and Distribution-free Statistics (Comparative Culture 282A-B) are also required for Social Inquiry students, although they are also strongly recommended for Expressive Forms students. In addition, Expressive Forms students must enroll in four approved electives (16 units) and Social Inquiry students must enroll in two approved electives (8 units) within or outside the Program.

During the third year, all doctoral students must enroll in a two-quarter (total 8 units) Seminar in Expressive Forms (Comparative Culture 249A-B, topics to vary) and a two-quarter (total 8 units) Seminar in Social Inquiry (Comparative Culture 289A-B, topics to vary). In addition, all students must enroll in five approved electives (20 units) within or outside the Program.

All graduate students, including Teaching Assistants and Associates, excluding properly qualified students entering with a Master's degree in some area of social inquiry or expressive forms, are expected to take three courses (12 units) per quarter. Any student who wishes to take more than four courses (16 units) must petition the Graduate Committee and gain approval of the Dean of the Graduate Division.

Incompletes will not be given for year-long courses except in extenuating circumstances.

Credit for previous academic work. Students entering with an M.A. degree may request credit for a maximum of nine courses (36 units). These courses might be accepted in lieu of electives. A written petition requesting an acceptance of previous work in lieu of electives should be made to the Graduate Committee of the Program after consultation with the academic advisor. Approval of the Dean of the Graduate Division is required.

Language Requirements. One foreign language and one "alternate skill" are required. The language will be decided upon by the student in consultation with the advisor. The language requirement must be satisfied either through a standard ETS examination or by another method approved by the Graduate Committee. The "alternate skill" may be another language, or a sequence of two courses in statistics, linguistics, or computer science, or some acceptable skill from the arts which is necessary for research. Both the language and the alternate skill must be satisfied before the qualifying examination can be taken.

Comprehensive First Year Examination. During the first week of the fall quarter, second year doctoral students are administered a comprehensive examination which covers the materials from the two proseminars offered during the first year, including reading lists provided in those seminars. Students have the summer months to complete preparations for the examination unhindered by course work. The entire faculty reads the examinations and determines whether students are invited to continue in the doctoral program. It is possible for students to fail this examination and to take it a second time the following December. A second failure results in academic disqualification. No degree will be awarded to students who fail the second examination. It is possible for students to pass the first or second examination and be awarded terminal Master's of Arts degrees. And it is possible for students to pass the first or second examination and to be invited to continue studies toward the Ph.D. degree.

In instances when students who failed the first examination have performed well on the second examination, the faculty will decide whether to award the terminal Master's degree or to invite the student to continue studies toward the Ph.D. degree.

Master of Arts Degree. Those doctoral students who pass the second examination but are not invited to continue beyond that point, or those who are invited to continue but choose not to do so, or those who have passed the Ph.D. qualifying examination, are awarded the Master of Arts degree by (a) completing 36 units (nine courses), 24 units (six courses) of which must be in Comparative Culture and 12 units (three courses) of which are approved electives, all the work may be done in Comparative Culture; and (b) demonstrating proficiency in a second language or an alternate skill.

The Ph.D. Qualifying Examination. Doctoral students are administered two examinations, one written and one oral. The written examination is scheduled after the completion of course work and language requirements. The student's committee, formed by the Chair of the Graduate Committee in consultation with the student, is responsible for formulating the examination questions. The examination will be based on Program courses and electives taken by the student during the second and third years. The entire Program faculty can be called upon to submit questions for the examination, and the entire faculty will read the examinations. If the student passes the examination, the student will then be advanced to the oral examination. The oral

examination follows successful completion of the written examination by two weeks or less and is conducted by a candidacy committee (normally the student's advisory committee) appointed in the name of the Graduate Council. This committee normally consists of five members of the UC Academic Senate or persons with equivalent qualifications, and will include at least one member who does not hold a faculty appointment in Comparative Culture. The committee recommends advancement to candidacy for the Ph.D. if the examination is successful.

Students who fail the written examination may, upon petition, take it a second time. Two failures culminate in expulsion from the Program.

The Dissertation. The final requirement for the Ph.D. degree is completion of a dissertation which is approved by the doctoral committee appointed by the Graduate Council.

COMPARATIVE CULTURE FACULTY

- Joseph G. Jorgensen, Ph.D. Indiana University, *Director of the Program in Comparative Culture and Professor of Comparative Culture and Social Science*
- Dickson Bruce, Ph.D. University of Pennsylvania, *Associate Professor of Comparative Culture and Social Science*
- Norma Chinchilla, Ph.D. University of Wisconsin, *Assistant Professor of Comparative Culture and Social Science*
- Pete Clecak, Ph.D. Stanford University, *Professor of Comparative Culture and Social Science*
- Raúl Fernandez, Ph.D. Claremont Graduate School, *Associate Professor of Comparative Culture and Social Science*
- James Flink, Ph.D. University of Pennsylvania, *Professor of Comparative Culture and Social Science*
- Gilbert Gonzalez, Ph.D. University of California, Los Angeles, *Assistant Professor of Comparative Culture and Social Science*
- George Kent, Ph.D. University of California, Berkeley, *Associate Professor of Comparative Culture and Social Science*
- Karen Leonard, Ph.D. University of Wisconsin, *Assistant Professor of Comparative Culture and Social Science*
- Carlton Moss, *Lecturer in Comparative Culture and Social Science*
- George O. Roberts, Ph.D. Catholic University of America, *Professor of Comparative Culture and Social Science and Special Assistant to the Vice Chancellor – Academic Affairs*

Dickran Tashjian, Ph.D. Brown University, *Associate Professor of Comparative Culture and Social Science*
 Joseph L. White, Ph.D. Michigan State University, *Professor of Comparative Culture and Social Science*

UPPER-DIVISION COURSES

NOTE: Students who entered UCI before fall quarter, 1977 should refer to the 1976-77 UCI General Catalogue and previous editions for complete information on undergraduate and graduate courses and requirements prior to fall, 1977.

100 Comparing Cultures (4)

Introduces students to the scope of cross-cultural comparisons by analyzing the theories, methodologies, and facts used by selected anthropologists, sociologists, social psychologists, political scientists, and historians in comparing cultures.

105 Scope and Problems of Interdisciplinary Studies (4)

An exploration of the problems of interdisciplinary scholarship and the interrelationship among social science and humanities disciplines, focusing on the transferability of conceptual systems and the development of meta languages.

120 Cultural Analysis of Literature (4)

Starting from an analysis of literature in itself, the course will proceed to a study of literature as a cultural document. The relevance of a formalist approach which views literature as autonomous will be assessed against a consideration of the cultural and social factors in illuminating a literary work, which in turn will be considered for the ways it might shed light on its social and cultural context.

121 Philosophy of Culture (4)

An introduction to philosophies of culture that have been formulated by philosophers, historians, anthropologists, and sociologists over the past four centuries. Evolutionary, functional, ecological, psychological, Marxist, structuralist, phenomenological, culture historical, kulturkreise, and culture area philosophies and explanations will be analyzed.

122 Folklore and Culture

122A Folklore and Popular Culture (4)

A survey of forms of folklore and their relationships to popular culture and to social and cultural analysis.

122B Comparative American Folklore (4)

A study of major genres of folk expression in American history, focusing on how folklore contributes to an understanding of American culture. Attention will be given to the songs, folktales, and folklife of various American groups.

123 Economics and Culture (4)

The economic problems of groups and ways of approaching them. A basic examination of men, ideas, and economic systems.

124 Politics and Culture (4)

An introductory examination of the relationship of political ideas to the socioeconomic structure of American society.

125 Society and Culture (4)

An introduction to issues in the study of society and culture through the works of major classical theorists such as Marx, Weber, and Durkheim.

126 History and Culture (4)

An introduction to ethno-history, focusing on the contributions of history to the interdisciplinary study of sociocultural systems.

127 Religion and Culture

127A Religion and Culture (4)

A survey of the major issues in the comparative study of religious beliefs and behavior. The course will examine forms of religious expression and organization and their relationship to social and cultural forces.

127B Comparative Religion (4)

An introduction to the comparative study of religion as it occurs in the major traditions of the Western and non-Western worlds, including Judaism, Christianity, Islam, Hinduism, Buddhism, Confucianism, Taoism, and Shinto. Theories of origins and religious behavior will be considered.

128 Cultural Analysis of Visual Arts (4)

This course will explore the relationships between the visual arts and the culture and society of which they are a part. The visual arts will be defined broadly as painting, sculpture, assemblage, and photography, seen as aspects of material culture. The works of nonliterate societies as well as those of the Western world will be analyzed and compared.

129 Language and Culture (4)

A lecture and discussion course in the nature of language, its spoken and written forms, and its relation to thought and other forms of human culture: the verbalization of morality, values, religion, aesthetics, and politics; problems in the interpretation of ideological works in ancient and recent times; semantics and psychology of speech, image, gesture, and onomatopoeia as communication — beyond the dictionary.

150 African Culture (4)

A survey course including the history of major African societies and states and contemporary forms of social and cultural life.

151 American Culture (4)

A survey of the historical development of dominant American society and culture. The course will aim to identify dominant social values and to explore their implications for the development of American society.

152 Latin American Culture (4)

A study of political, social, economic, and intellectual forces in Latin America. Major topics include Latin American thought; social stability and instability, including revolutionary change; changing Latin American cultures.

153 Asian Culture

153A Japanese Culture (4)

Japan from ancient times to the present.

153B Chinese Culture (4)

China from ancient times to the present.

153C Indian Culture (4)

A survey of the history of India, with emphasis on elements of cultural and structural continuity in Hindu civilization.

154 Minority Cultures in America

154A Asian-American Culture (4)

A survey course in which socio-political-economic dimensions of Asian-American people will be analyzed – their past, present, and future.

154B Afro-American Culture (4)

A survey of the development of Afro-American culture with a focus on the United States. Topics will include African and New World sources as well as contemporary forms of Afro-American social and cultural life.

154C Chicano Culture (4)

A critical survey of social science literature on the Chicano experience and a general discussion of the various models and theories applied by social scientists to the study of oppressed national minorities. The class will conclude with lectures on race and class within the context of the Chicano experience.

154D Native American Culture (4)

An introduction to the history, evolution, ecology, and culture areas of North American Indians. Describes how Native Americans once were and why they were that way. A brief introduction to contemporary Native American culture is provided.

155A-B-C Women's Studies

155A Theories of Women in Society (4) F

An examination of explanations advanced for the differential position of men and women in society. Readings will focus on psychological, sociological, and philosophical theories of sexual distinctions and sexual relations.

155B Women and Culture (4) W

An examination of the relationships of women to various aspects of their culture. Readings will focus on problems of the image of women in literature, feminine creativity in male dominated culture, feminist critiques of anthropological theories, and anthropological case studies of women in culture.

155C Theory and Practice of the Women's Movement (4) S

A historical survey and an analysis of issues currently raised by the women's movement. Topics of concern are the implications of feminism for traditional institutions of marriage and the family, problems concerning the control of women over their bodies, such as abortion and sterilization and ethical problems of economic and social justice.

195 Special Topics (4)

Special topics courses are offered from time to time, but not on

a regular basis. These courses probe a single ethnic group or culture, or take up a special cultural problem or an aspect of culture for consideration. Possible subject matters are: Film and Visual Arts; The Image of Minorities in American Films; Comparative American History Through Literature; Women in Film; American Autobiography; American Ideologies; Comparative Ethnic Politics; Chicano Historical Experience; Contemporary China; Contemporary Japan; Hinduism Great Tradition; Afro-American History; History of Education in America.

196 Seminars (4)

197 Field Study (4)

199 Independent Study (4)

GRADUATE COURSES IN COMPARATIVE CULTURE

See note on page 211.

205A-B-C Proseminar in Expressive Forms (4-4-4) F, W, S

A survey of the literature pertaining to the cultural and social analyses of expressive forms. The first quarter will emphasize general theoretical approaches to such analyses; the second quarter will be devoted to a study of myth and ritual; the third quarter will explore literature and the visual arts. Extensive reading will be stressed, with short essay assignments and a final examination each quarter.

249A-B Seminar in Expressive Forms (4-4)

A two-quarter research seminar on a specialized topic in expressive forms. Topics vary from year to year. Required of all Comparative Culture graduate students. Prerequisites: Comparative Culture 205A-B-C.

250A-B-C Multicultural Foundations of Education (4-4-4)

Introduces M.A.T. candidates to the fundamental issues that pertain to multicultural interpretation of the U.S. society and strategies for teaching public school pupils the multicultural concepts. The major focus of this sequence includes social structure and education, cultural bias in American education (250A); alternative focus for cultural study (250B); and strategies for implementation of multicultural concepts (250C). All courses attempt to incorporate field-based observations in their organization. Not offered 1977-78.

261A-B-C Proseminar in Social Inquiry (4-4-4) F, W, S

A survey of the philosophy and conceptual and methodological tools of the social sciences, with emphasis on the problems of interdisciplinary research. Required of all first-year Comparative Culture doctoral students.

266A-B-C Nondominant American Classes and Cultures: Literature and Interpretations (4-4-4) F, W, S

A survey of the literature and interpretations of nondominant social classes and ethnic/racial cultures in the United States. Emphasis is on similarities and differences with one another and on their relationships with the dominant classes and cultures. Required of all second-year students in Comparative Culture.

268A-B Cross-Cultural Comparisons

Analysis of the logic and methodologies of research in cross-cultural studies. Focus on explanations, methodological assumptions, and research techniques.

268A (4) W

Introduction to cross-cultural research which analyzes case or illustrated analysis, topological analysis, and statistical analysis (testing). The logic of statistical analysis, problems of reliability and validity, secondary cross-cultural studies of world-wide scale and of continuous area samples will be addressed. Prerequisites: Comparative Culture 261A or Social Science 100A-B-C or consent of instructor; Comparative Culture 282A for Social Inquiry majors (preferred for others).

268B (4) S

Primary cross-cultural studies will be analyzed. The final month will be spent in conducting primary or secondary cross-cultural research projects. Prerequisite: Comparative Culture 268A and Comparative Culture 282A-B for Social Inquiry majors (preferred for others).

282A-B Statistics for Cross-Cultural Comparisons**282A (4) F**

Descriptive and regression-free statistics for cross-cultural comparisons appropriate for nominal, ordinal, and continuous data, especially data that are skewed and nonlinear. The uses for these statistics will be pinned to examples from intracultural and cross-cultural samples. Analysis of the uses of regression-free statistics (proportional reduction of error, percentage reduction of error, curvilinear association, etc.) will constitute the majority of the course lectures and assignments. Required of Social Inquiry doctoral students and strongly recommended for Expressive Forms doctoral students. Prerequisites: Social Science 100A-B-C or consent of instructor.

282B (4) W

Nonparametric statistics for cross-cultural comparisons will be explicated. The thrust will be toward tests of probability for nominal, ordinal, and ration scales of measurement (where an infinite number of parameters are unknown). Examples from cross-cultural research will provide the data for the course. The goal of the two courses will be to make students proficient at the graduate level to conduct formal comparative research. Prerequisite: Comparative Culture 282A.

289A-B Seminars in Social Inquiry (4-4)

A two-quarter research seminar on a specialized topic in social inquiry. Topics vary from year to year. Required of all Comparative Culture graduate students. Prerequisites: Comparative Culture 261A-B-C.

290 Dissertation Research (4)**291 Directed Reading Examination Preparation (4)****299 Individual Study (4)**

Department of Information and Computer Science

Thomas A. Standish Chairman

The development of the modern digital computer has made possible the solution of large-scale information processing problems in science, industry, and government. These problems include predicting the orbit of a satellite, simulating the economy, keeping track of inventories, and checking income tax returns. Such problems are solved by having the computer execute a procedure — a sequence of information processing operations including but not limited to arithmetic operations, testing and comparing numbers and representations of alphabetic information, and changing the sequence of operations within the computer. Information and computer science is concerned with the development of procedures which are effective and efficient, languages suitable for stating these procedures, and systems for executing procedures.

The implications of research in the development of information processing procedures and of systems for preparing and executing these procedures extend beyond the direct applications in using the modern digital computer to solve problems ranging from bookkeeping to the control of orbiting satellites. Many animate and inanimate systems can be usefully viewed as information processing systems and analyzed in terms of the way they represent, store, and process information. Thus information and computer science provides a point of view, an approach, for studying phenomena in many sciences.

Degrees

Information and Computer Science B.S., M.S., Ph.D.

Honors

Honors at graduation, e.g., *cum laude*, *magna cum laude*, *summa cum laude*, are awarded on the basis of grade point average and the student's performance on research. Approximately 12% of the graduating seniors are selected for honors.

UNDERGRADUATE PROGRAM

The undergraduate program in Information and Computer

Science (ICS) is designed for students preparing for professional careers and for students preparing for graduate study in information and computer science. It is designed to acquaint the student with the presently available methods of information and computer science which are useful in solving problems of science, industry, and government; to prepare the student for the additional formal and self education required in this rapidly developing field; and to foster and extend the student's abilities to solve the kinds of problems encountered in information and computer science. The use of the computer as a problem-solving tool and the effects of its adoption on procedure and data representation are the underlying themes of the program.

Students enrolled in other degree programs who are interested in digital computer programming will normally begin their studies with Introduction to Programming and Problem Solving I (ICS 1) and continue in the programming sequence with Programming and Problem Solving II (ICS 2) and Programming and Problem Solving III (ICS 3) as far as their interests require and their programs permit. Students who are doing, or planning to do, extensive work with numerical problems are advised to consider courses in numerical analysis.

Students are advised on academic matters by faculty and staff. Advising of undergraduate students is coordinated by the departmental counselor who also provides information on vocational and counseling services available on the campus.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

Departmental Requirements

Information and Computer Science 1, 2, 2L, 3. Any six of the following Information and Computer Science courses: 141, 142, 151, 152, 161, 162, 171. Any two of the following Information and Computer Science courses: 145, 155, 175, 195. Information and Computer Science 193.

Expository Writing, WR 39, and two additional quarter courses (eight units) in the Schools of Humanities or Fine Arts.

Mathematics 2A-B-C, 6A-B-C, and a three-quarter sequence of any upper-division Mathematics course.

Each quarter the Department publishes a Handbook for Undergraduate Students containing other rules and regulations. Students may inquire at the Information and Computer Science Counselor's office for a copy.

The 3-2 Program with the Graduate School of Administration

Information and Computer Science majors may enter a cooperative 3-2 program offered by the Graduate School of Administration. The special five-year program for selected students leads to both a Bachelor of Science degree in Information and Computer Science and a Master of Science degree in Administration. Inquiries should be directed to the Graduate School of Administration. See page 266.

GRADUATE PROGRAM

M.S. Degree

The Master of Science in Information and Computer Science is designed to provide first level professional training in information and computer science and related fields, and basic theoretical understanding and opportunities for continuing development for professional practitioners.

The M.S. Program offers a core curriculum and opportunities for concentration in one of three fields.

Software Design and Analysis — emphasis on the analysis, design, implementation, and management of software systems, such as operating systems, translators, and information retrieval systems.

Information Systems — emphasis on the analysis of information requirements in organizations and the design of systems to meet those requirements.

Computer System Organization — emphasis on the specification and synthesis of computer systems, particularly their organizational and hardware aspects.

Admission to the program requires a baccalaureate degree, including two years of course work beyond the introductory level in computer science and at least two years of college level mathematics, or equivalent work experience. The Graduate Record Examination (GRE) Aptitude Test is required, and the GRE Advanced Test in Computer Science is strongly recommended.

The program consists of 12 courses (48 units). Three may be upper-division undergraduate courses. If appropriate to the program, up to three graduate courses (12 units) may be accepted as transfer credit from other institutions.

Three courses (12 units) are required of all students in the M.S. Program:

ICS 221 (Analysis of Computer Systems)

ICS 231 (Applied Formal Analytic Techniques)

ICS 245 (Introduction to Software Engineering)

A thesis reporting on a major piece of technical work is required.

The program is available to students who are unable to study full time because of personal or professional commitments.

Ph.D. Program

The program leading to the Ph.D. in Information and Computer Science provides an environment for the training of teachers and researchers. The program has three phases. In phase one the student becomes familiar with basic concepts in several areas of computer science. In phase two the student participates in research projects. In phase three, the dissertation phase, the student designs, executes, and reports a major research project. The program is designed for full-time study and is compatible with teaching and research assistantships.

The departmental research program focuses on four areas:

Effective and efficient procedures for solving problems;

Languages appropriate for stating procedures;

Hardware and software systems for executing these procedures;

Social and economic implications of widespread use of computers.

Admission

Approximately 12-15 students are admitted each year. Applications are evaluated on the basis of the student's prior academic record and potential for creative professional contributions. Applicants are expected to have good skills in computer programming and skills in mathematics equivalent to those obtained by students who complete college-level courses in logic and set theory, analysis, linear algebra, and modern algebra or probability and statistics. Computer science undergraduate training is not required, but some familiarity with machine organization, data structures, software systems, and formal models is helpful.

Applicants should take both the GRE Aptitude Test and the GRE Advanced Test in Computer Science. Where feasible, personal interviews are desired, but inability to have one does not prejudice an application. Additional informa-

tion on application procedures can be obtained from the Graduate Division. Further information on the Department and the graduate program can be obtained by writing to the Department.

Financial Assistance

Financial assistance is available to students in the form of teaching and research assistantships. Stipends vary, depending on the duties involved, and range from \$3,000 to \$5,000 for the academic year. More than half of the doctoral students in residence in 1976 had financial assistance.

General Requirements for the Ph.D.

Within the requirements of the University and the dictates of practicality, our aim is to permit students to demonstrate their competence in whatever order and by whatever means best suit them.

Three overlapping types of activities in the program can be identified:

Type 1. Attainment and demonstration of breadth of knowledge in computer science; this involves course work, independent study, and other related activities.

Type 2. Directed research, generally involving work with faculty members on topics of mutual interest.

Type 3. Significant independent research. This constitutes a student's thesis.

For purposes of description and certification, it is useful to describe a student as being in a *phase* corresponding to one of these types of activity. Students will spend different amounts of time in each phase depending on their backgrounds and abilities. Although we speak of one leaving a phase and entering another in an ordered sequence, in fact, the phases are expected to overlap for most students in terms of their activities.

Breadth Phase: Upon entry to the program, a student is assigned a Breadth Advisory Committee composed of two faculty members and one student who is in the Research or Dissertation Phase. With the approval of the people involved, a student may change the composition, but not the balance, of the Advisory Committee at any time. It is the Committee's job to guide the student's Type 1 activities and to certify that the student has attained sufficient breadth in computer science.

This certification will be based on two things:

1. Demonstration of competence in four content areas.

2. Satisfactory performance on an oral Comprehensive Examination.

A great deal of latitude is permitted the student and the Committee with respect to these items within the guidelines below.

The student and the Advisory Committee may choose any four of the following areas for demonstrations of competence: hardware, operating systems, computational linguistics, artificial intelligence, programming systems and languages, theory of computation, social impacts, algorithmic analysis, numerical analysis. A student may petition the faculty to include additional areas. We encourage each student to select one area which is outside the ICS Department. Competence may be demonstrated by written examination, oral examination, or projects. Their scope and content will be determined by the individual's Advisory Committee.

All or part of the area competence requirements may be waived upon recommendation of the Committee and approval of the faculty. A student may petition for such a waiver based on previous study and work in computer science and presentation to the Committee of sufficient evidence of such work.

After completing the first part of the breadth certification, the ICS faculty will then orally examine the student's literacy in a broad range of topics in ICS.

The timing and methods chosen by students and their Committees to develop competence in different areas are expected to vary. Typically the student and the Committee will outline a program for each area that makes use of a combination of the following resources: courses, individual study, project work, directed research.

Colloquium: Each student shall present a colloquium to the Department in the area of interest prior to entering the dissertation phase.

Teaching Requirement: All ICS graduate students are required to participate in teaching activities before being advanced to candidacy. Teaching activities in summer or night school, service at other universities, etc., may be accepted as fulfillment of the requirement.

Programming Competence Requirement: A computer scientist must be able to read and write programs in assembly, algebraic, and nonnumerical languages. The demonstration of programming competence is left to the discretion of the

certifying committee, but may be the presentation of work done in conjunction with other Type 1 or Type 2 activities.

INFORMATION AND COMPUTER SCIENCE FACULTY

Thomas A. Standish, *Associate Professor and Chairman of the Department of Information and Computer Science*

Arvind, *Assistant Professor of Information and Computer Science (on leave)*

Alfred M. Bork, *Professor of Physics and Information and Computer Science*

John P. Boyd, *Associate Professor of Anthropology and Information and Computer Science*

Ruven Brooks, *Assistant Professor of Information and Computer Science*

George W. Brown, *Professor of Administration and Information and Computer Science*

David J. Farber, *Associate Professor of Information and Computer Science (on leave F)*

Julian Feldman, *Professor of Information and Computer Science and Psychology (on leave W, S)*

Peter Freeman, *Assistant Professor of Information and Computer Science*

Kim Gostelow, *Assistant Professor of Information and Computer Science*

Keith E. Justice, *Associate Professor of Population and Environmental Biology and Information and Computer Science*

Robert E. Kling, *Assistant Professor of Information and Computer Science*

George S. Lueker, *Assistant Professor of Information and Computer Science*

Jim Meehan, *Assistant Professor of Information and Computer Science*

Jack Sklansky, *Professor of Electrical Engineering and Information and Computer Science*

Fred M. Tonge, *Professor of Information and Computer Science and Administration (on leave F)*

LOWER-DIVISION COURSES

- 1 **Programming and Problem Solving I (4) F, W, S**
Concepts and properties of procedures; language and notation for describing procedures; application of a specific procedure-oriented language to solve simple numerical and nonnumerical problems using a computer. Principles for using computers effectively and for clearly conceiving and expressing procedures.
- 2 **Programming and Problem Solving II (4) F, W**
Logical basis of computers and their structure: representation of instructions and data, codes, and number bases. Stack systems

and other organizations. Assembly, linking, and loading. Computer as interpreter: microprogramming and interpretation. Programming in a higher-level language and in assembly language. Prerequisite: ICS 1 or equivalent.

- 2L **Laboratory for Programming and Problem Solving II (2) F, W**
Programming projects in macro-assembly language to develop, in depth, ideas introduced in ICS 2. Corequisite for ICS majors: ICS 2.
- 3 **Programming and Problem Solving III (4) W, S**
Basic concepts of data structures and related algorithms. Arrays, lists, queues, stacks, strings, trees, and graphs; discussion of various implementations of these data objects. Investigation of effects of implementation choice on efficiency of an algorithm. Storage allocation and garbage collection. Sorting and searching. Comparison of data structuring features of several programming languages. Prerequisite: ICS 2.
- 10 **Computers and Society (4) F**
Introduction to the current state of information and computer science and technology for the nontechnical student. An overview for the person who wants to understand computers and automation as a major element in our technological society. Terminology and concepts; information structures; hardware and software; programming languages; applications in business, science, and education; implications. May not be taken for credit by ICS majors.
- 15 **Semantics of Computing (4)**
Introduction to computers intended primarily for students in the social sciences, fine arts, and humanities. Stress on the non-numeric uses of computers including their use as powerful symbol manipulators. Emphasis on discovery of computing concepts through actual use of computers. Credit may not be received for both this course and ICS 1.
- 90 **Survey of Programming Languages (4)**
Presentation and comparison of the procedural and data representation capabilities of several programming languages. Computer solution of problems in each language. Prerequisite: ICS 1 or equivalent.

UPPER-DIVISION COURSES

- 141 **Programming Languages (4) F**
In-depth study of several contemporary programming languages stressing variety in data structures, operations, notation, and control. Examination of languages for list, string, and array manipulation; languages for structured programming and systems programming; command and query languages; and general purpose languages. Principles of programming language design; programming style; run-time representations, environments, and execution strategies. Prerequisites: ICS 2 and 3.
- 142 **Compilers and Interpreters (4) W**
Introduction to theory of programming language processors. Study of compilers focusing on lexical analysis, syntax analysis, and compile-time mechanics including code generation and opti-

- mization. Study of interpreters focusing on execution of interpretive representations (such as postfix), on mechanics of interpretation, and on run-time management of data structures. Prerequisite: ICS 141.
- 145 Language Processor Construction (4) F, S**
Project course which provides working laboratory experience with construction and behavior of compilers and interpreters. Students build actual language processors and perform experiments which reveal their behaviors. Prerequisite: ICS 142.
- 151 Elements of Digital Computers (4) F**
First part of course deals with important concepts of switching theory: Boolean algebra, combinatorial circuits, synchronous sequential circuits, minimization, Mealy and Moore machines. Second part of course deals with register-transfer level of digital computers: instruction set processors, I/O controllers, interprocessor communication mechanisms, and memory organizations. Emphasis on current state of hardware technology and impact of technology on system design. Prerequisites: ICS 2L and 3.
- 152 Process and Resource Management in Computer Systems (4) W**
Principles and concepts of process and resource management, especially as seen in operating systems. Processes, memory management, protection, scheduling, file systems, and I/O systems are covered. Concepts illustrated in context of several well-known systems. Prerequisites: ICS 141 and 151.
- 155 Project in Computer System Organization (4) W, S**
Detailed specification and design of an actual computer system. Hardware-software tradeoffs. Emphasis on logical organization of system and on communicating design to others through documentation suitable for generating a concrete implementation. Prerequisite: ICS 151.
- 161 Design and Analysis of Algorithms (4) F**
Discussion of time and space complexity of algorithms. Models of computation, techniques for efficient algorithm design, effect of data structure choice on efficiency of an algorithm. Fast algorithms for problems such as sorting, set manipulation, graph problems, matrix multiplication, Fourier transforms, and pattern matching. NP-complete problems. Prerequisites: Mathematics 6A-B-C and ICS 3.
- 162 Formal Languages and Automata (4) S**
Formal languages and their description by grammars and automata: regular, context-free, context-sensitive, and unrestricted languages. Deterministic and nondeterministic machines, ambiguity, and decidability. Normal-form theorems, operations on languages, and representation conversion. Prerequisites: Mathematics 6A-B and ICS 3.
- 171 Introduction to Heuristic Problem Solving in Artificial Intelligence (4) W**
Different means of representing knowledge and uses of representations in heuristic problem solving. Representations considered include predicate logic, semantic nets, procedural representations, natural language grammars, and search trees. Prerequisites: Mathematics 6A-B and ICS 3.
- 175 Project in Artificial Intelligence (4) S**
Construction of a working artificial intelligence system. Evaluation of capabilities of the system including impact of knowledge representation. Prerequisites: ICS 171 and another course in artificial intelligence.
- 181 Organizational Information Systems (4) F**
Introduction to role of information systems in organizations, components and structure of organizational information systems, and techniques used in information system analysis, design, and implementation.
- 182 Tutoring in ICS (4) F, W, S**
Offers opportunities to tutor both on an individual-as-needed basis and as part of regularly scheduled courses. Specific tutoring assignments will depend on the courses with which the student is working, as determined by the instructor in charge. In most cases they will include some time in individual tutoring and a term paper on project.
- 183 Data Processing Principles and Techniques (4) W**
Primary emphasis on Cobol programming and its application in a business environment. Several programming projects required. Focus on development and implementation of business financial applications. File organization, access methods, introductory concepts in data base development. Prerequisite: ICS 1 or equivalent.
- 184 File and Data Base Management (4) S**
Data base system architecture – data structures, storage structures, and data languages. Alternate approaches to data base management systems – relational approach, hierarchical approach, network approach. Data base security and integrity. Query processing.
- 186 Computer Graphics (4)**
Interactive graphics software and hardware. Survey of interactive graphic design systems, spanning a large family of disciplines. Each class member will generate an operational program demonstrating interactive graphics as a man-computer communication media.
- 191 System Measurement and Evaluation (4)**
Framework and methodology for determining the performance of existing and proposed information processing systems. Evaluation from the viewpoints of users, designers, and customers.
- 193 Individual and Organizational Factors in Computing (4) F, S**
Computing as a professional activity; issues of recognized standards of performance, licensing of practitioners, code of ethics. Specification and impacts of information systems in an organizational environment. Computers as a tool from a societal-cultural perspective.
- 195 Project in System Design (4) F, W**
Specification, design, implementation, testing, and documentation of a software system. Emphasis on methods essential to creating software systems: logical design, effective oral and written communication of concepts, proper programming style, well-

planned testing, and group cooperation. Prerequisites: ICS 141 and senior standing.

199 Individual Study (4) F, W, S

GRADUATE COURSES

211 Data Structure (4) F

An in-depth treatment of a variety of data structures and their associated management algorithms. Queues; stacks; arrays and their address mapping functions; list structures including garbage collection, compacting, copying and equality; trees, subtrees, free and binary trees, balanced trees, AVL trees, and the use of trees in sorting and searching; multi-linked structures including storage allocation strategies, tables, hash codes, comparison of search methods; strings, encrypting, compression and minimal length encodings; files, records, file structures; and theories and formalisms for data description.

212 Programming Language Processors (4) W

Theory and construction of compilers and interpreters for programming languages. Lexical Analysis: use of finite state automata, regular expressions, fast membership and conversion techniques. Syntax Analysis: Top-down, Bottom-up, Cocke's Algorithm, Earley's Algorithm, precedence techniques and left-to-right shift-reduce techniques such as LR(k), SLR(k), LALR(k), and reduction analysis. Compiling Mechanisms; symbol tables, chaining, floating addresses, dope vectors, thunks. Code Optimization: constant propagation, register minimization, code notion, reduction in operator strength, interval analysis, and other techniques. Run-Time Mechanics: Algol displays, heaps. Anatomy and construction of Interpreters: intermediate forms such as postfix, interpretive execution of intermediate forms. Prerequisite: ICS 211.

221 Analysis of Computer Systems (4) W

Comparison of architectures of several important systems of current and historical interest. Comparisons will be based on instruction set processors, addressing schemes, I/O structures, memory organization, resource and process management, protection schemes, and the degree of parallelism. Both hardware and software realizations of these architectural features will be studied.

222 Design of Computer Systems (4) S

Design methodologies for computer systems. Hardware-software tradeoffs. Hardware and software description languages. Functional description of systems before they are built. Impact of hardware technology on systems. Discussion of current trends in organization of systems. Prerequisite: ICS 221.

231 Applied Formal Analytic Techniques (4) S

Introduction to theoretical aspects of computer science useful in applications. Topics from analysis of algorithms, operations research techniques, and formal models of computer systems (intended primarily for M.S. students).

232 Models of Computation (4) S

Fixpoint theory of program semantics; flowchart and recursive

schemes. Various models of asynchronous computation, including flow graph schemata and data flow models such as Petri nets and programming-oriented systems. Focus in these latter models is on various properties such as determinacy, deadlock, race conditions, and on the modeling of processes and interprocess communication. Implications for machine architecture and network.

233 Analysis of Algorithms (4) F

Analysis of correctness and complexity of various efficient algorithms; discussion of problems for which no efficient solutions are known. Set manipulation, graph algorithms, matrix multiplication, fast Fourier transform, pattern matching, and NP-complete problems.

241 Computer Models of Human Behavior (4) F

Study of experimental and analytical techniques appropriate to the development of computer models of human behavior with special emphasis on information processing models. Problems of induction and testing of models will also be present.

242 Knowledge Representation in Artificial Intelligence (4) S

Investigation of approaches to representation of knowledge for machine intelligence. Need for such knowledge as exhibited by examples of human behavior. Evaluation of current models and representations.

245 Introduction to Software Engineering (4) F

Survey of concepts and techniques in design and development of large software systems. Fundamental problems and applicable research in needs analyses, specification, design, programming, testing, project management, and software quality.

246 Economics and Administration of Computing (4)

Approaches to providing computing services in the context of large organizations. Determination of goals, selection of equipment, management of programming staff, coping with change, marketing services, keeping up with technology, pricing and other techniques for allocation of services, financing, vertical versus horizontal organizations.

Graduate-level seminars and workshops are not offered each year but are offered as student and faculty interests dictate.

250 Seminar in Programming Languages, Translators, and Systems (4)

251 Seminar in Artificial Intelligence (4)

252 Seminar in Automata Theory (4)

253 Seminar in Formal Languages (4)

254A-B-C Seminar in Pattern Recognition (4-4-4)

255A-B Seminar in Self-Organizing Systems (4-4)

256 Seminar in Computer Architecture (4)

257 Seminar in the Economics of Computation (4)

258 Seminar in the Social and Economic Implication of Computers and Automation (4)

259 Seminar in Optimization Techniques (4)

- 260 Seminar in Computational Linguistics (4)
- 261 Seminar in Numerical Analysis (4)
- 262 Seminar in Models of the Brain (4)
- 270 Workshop in Programming Languages, Translators, and Systems (4)
- 271 Workshop in Artificial Intelligence (4)
- 272 Workshop in Automata Theory (4)
- 273 Workshop in Formal Languages (4)
- 274 Workshop in Pattern Recognition (4)
- 275 Workshop in Self-Organizing Systems (4)
- 276 Workshop in Computer Architecture (4)

280 Special Topics in Information and Computer Science (4)
F, W, S

290 Research Seminar (2) F, S

Forum for presentation and criticism by students of research work in progress. Presentation of problem areas and related work. Specific goals and progress of research. Satisfactory/Unsatisfactory only.

295 Colloquia-Orientation (2) F, W, S

Graduate orientation program and colloquium series. Fall quarter enrollment required of all entering Ph.D. students. Satisfactory/Unsatisfactory only.

298 Thesis Supervision (4) F, W, S

299 Individual Study (4) F, W, S



Program in Social Ecology

Ellen Greenberger Director

The Program in Social Ecology represents an interdisciplinary effort to apply scientific methods to the analysis of a wide range of problems arising out of the complex interactions among persons and their physical and social environments. The term "social ecology" has its roots in the work of natural scientists who studied the natural selection and adaptation of species by observing the behavior of organisms in their actual habitats. This method was founded on the assumption that organisms are best studied in nature where they function as parts of complex systems comprised of other living and nonliving entities. Subsequently, ecological analysis was extended by social scientists to the study of human behavior.

Sociologists in the 1920s studied the dynamic relationships among the physical, social, and economic characteristics of communities and the adaptive and maladaptive behavior of their human residents (e.g., changes in fertility rates, acquisition of locally needed job skills, criminality). Psychologists began to analyze the interactions between human behavior and smaller social-environmental settings (e.g., the work place, the dormitory). Psychologists have also examined how interpersonal processes affect the individual's behavior and how, in turn, the individual's behavior affects the behaviors and expectations of others.

The Program in Social Ecology directs its resources to the analysis of contemporary social and environmental problems. Curriculum is organized by problem area (e.g., Environmental Analysis) rather than by discipline (e.g., regional planning, environmental psychology). The faculty retains a central interest of the early ecologists in problems of stress and adaptation, and a special, but not exclusive, interest in naturalistic studies — the study of problems in their natural settings. Laboratory research and other methods of investigation, however, are also necessary to the social ecologist's endeavor. The faculty are *multidisciplinary* (i.e., they come from psychology, law, sociology, planning, public health, and biology) and believe that the analysis and resolution of growing problems in such areas as environmental quality, mental health, and crime require *interdisciplinary* efforts (i.e., the joining of talents by those with different intellectual backgrounds).

Degrees

Social Ecology B.A., M.A., Ph.D.

Honors

Honors at graduation will be awarded to about 12% of the graduating seniors. Initial eligibility for such honors will be on the basis of grade point average. Among those qualifying, the awards of *summa cum laude*, *magna cum laude*, and *cum laude* shall be determined by a committee that considers, in addition to grade point averages, scholarly qualities displayed in day-to-day classroom work, independent study, and field study papers.

UNDERGRADUATE PROGRAM

The undergraduate program is organized around four curricular components: a Principles and Methods cluster and three subareas concerned broadly with problems of Environmental Analysis, Criminal Justice, and Social Behavior. Students do not major in a particular subarea; rather, they are encouraged to study a variety of problems from a variety of perspectives.

An important characteristic of the undergraduate program is its field study requirement for majors. Field study is open *only* to Social Ecology majors. In faculty-supervised field study situations, students relate theories learned in the classroom to actual social-environmental problems, use acquired skills to collect meaningful data, and test findings from controlled laboratory studies in the more complex settings in which significant behaviors and events actually occur. The settings provided for field study include a wide range of problem-oriented institutions and agencies, e.g., Orange County Planning Department, Orange County Department of Mental Health, Orange County District Attorney's Office, California Youth Authority, Environmental Education Council. Other field study placements may be generated by faculty and students to fit their particular interests. Further information on field study, including information about sign-up procedures, may be obtained from the Social Ecology Counseling Office.

Students who have majored in Social Ecology may take several different career paths. Social Ecology provides a possible route into careers in governmental agencies, business, industry, and education. In recent years, a number of students with B.A.'s in Social Ecology have obtained jobs in the offices of county and city planners, in social and welfare programs, in probation departments, and in the federal Environmental Protection Agency.

Academic careers and most high-level professional jobs, however, require advanced degrees. The Program in Social Ecology provides a context from which students may go on to graduate work in the social and biological sciences, law, planning, and administration. Many graduate programs encourage applications from students whose undergraduate education encompasses several academic disciplines and whose intellectual interests cross disciplinary boundaries.

Major Subareas

Environmental Analysis

The Environmental Analysis subarea of the Program in Social Ecology is concerned primarily with the impact of change in the physical environment on human behavior and health. Also of interest is the reciprocal effect of human behavior on the physical environment. Problems of environmental planning and design, environmental health, and population dynamics provide the material for studying stress and consequent adaptation. In addition to introductory courses on each of these three general topics, further courses of the subarea include Analysis of Metropolitan Areas, The Limits to Growth, Water Pollution and Control, Environmental Testing, Environmental Law, Seminar on Density and Crowding, and Design and Behavior. Faculty who teach these courses include regional planners, public health biologists, human ecologists, and environmental psychologists.

Criminal Justice

The Criminal Justice subarea of the Program is concerned with the social control of criminality. The subarea focuses on stressful factors at both the individual and societal levels which promote criminal behavior and on the institutions which have arisen to control criminality. An introductory course takes up the nature of criminal behavior and the legal and organizational components of the criminal justice system. Further courses include Forms of Criminal Behavior, Delinquency and Juvenile Justice, Police-Community Interaction, Crimes Without Victims, Criminal Procedure, White-Collar Crime, Prisons, Punishment, and Corrections, and Seminar in Mental Health and Criminal Justice. Faculty who teach these courses include sociologists, psychologists, and lawyers.

Social Behavior

The Social Behavior subarea of the Program is concerned with the relationship between the social environment and human behavior. The central objective is to study variations

in social settings (e.g., family, peer group, and institutional settings such as prisons, schools, and workplaces) which have implications for the occurrence of specific behaviors and for the overall course of social development. Roles, values, expectations, and other interpersonal processes are the context in which stress and adaptation are studied. An introductory course is offered which deals with normal and atypical social behavior. Further courses in the subarea include Human Groups, Anger and Violence in Society, Society and Personality Development, Behavior Modification, Atypical Child Development, Extreme Environments and Human Functioning, and Human Development Over the Life Cycle. Faculty who teach these courses include social, clinical, community, and developmental psychologists, among others.

Requirements for the Bachelor's Degree

University Requirements: See page 20.

Program Requirements

Social Ecology 1 (Principles of Social Ecology) and 10 (Research Design); any three of the following introductory Social Ecology courses: J4 (Introduction to Criminal Justice), E5 (Introduction to Environmental Quality and Health), E6 (Fundamentals of Ecology), E7 (Introduction to Planning and Public Policy), or S9 (Introduction to Human Behavior); required prerequisite courses for field study in a given subarea; three quarters of field study, E197, S197, or J197, to be elected during the junior and senior years; and five upper-division courses (those numbered 100-196) from Program in Social Ecology offerings.

NOTE: Students who entered UCI before fall quarter, 1977 should refer to the 1976-77 UCI General Catalogue and previous editions for information on the course numbering and lettering system prior to fall, 1977.

Planning a Program of Study

As noted earlier, students who major in Social Ecology do not limit themselves to a single subarea of interest. Rather, they are encouraged to develop an appreciation of a wide array of person-environment problems. The strongest program of study will also include basic course work in at least one of the social, biological, or physical sciences.

The Social Ecology Counseling Office is prepared to help students in planning a program of study. Contact with this Office is important so that students will develop a broad, yet coherent, series of courses. Students who expect to

pursue graduate study should also consult with appropriate faculty members to ensure proper preparation.

GRADUATE PROGRAM

The Program in Social Ecology offers graduate instruction leading to the Master of Arts and Doctor of Philosophy degrees. Students desiring a Ph.D. should apply directly for the Ph.D. program. Only individuals interested in the M.A. as their final degree in Social Ecology should apply for admission at the Master's level. The emphasis in Social Ecology graduate study is primarily upon theory, research, and intervention on a systems level. Clinical training is de-emphasized. All applicants for either the M.A. or Ph.D. should submit undergraduate transcripts, three letters of recommendation, Graduate Record Examination Aptitude Test scores, and a formal application to the Graduate Division before March 1. Interested persons may call the Social Ecology Graduate Counselor, Jan Martin, (714) 833-5917, for further information.

Graduate study is organized around contemporary problems in the social and physical environment, rather than having its foci dictated by the historical development of the traditional disciplines. Students are expected to approach problems from a multidisciplinary perspective and are encouraged to investigate problems in their naturalistic context.

Faculty research interests currently center on several broad problem areas. One area focuses on environmental problems. Here, urban planners, social and environmental psychologists, public health specialists, and biological ecologists collaborate on research and intervention projects on issues such as crowding, stress, population, land use, pollution, behavioral costs of economic change, and social program evaluation.

A second area is concerned with the role of variations in social environments on the development and evocation of normal and atypical human behavior. Psychologists in this area, whose work has implications for the psychological well-being of groups (e.g., communities, schools, and work-groups) as well as for that of individuals, conduct research on the development of values during adolescence, childhood hyperactivity, stress and aggression, and strategies of intervention and behavior change.

A third area emphasizes the role of social control and the criminal justice system in ameliorating or exacerbating social problems. Lawyers, sociologists, and psychologists

conduct research on alternatives to current juvenile justice practices, victimology, specific forms of criminal behavior such as forcible rape and white-collar crime, organizational atmospheres and philosophy in prisons, and the impact of laws and punishments on criminality.

It should be emphasized that these interest areas are non-exclusive. Students are encouraged and supported to develop interests that bridge these areas.

Collaborative research with faculty members is an important component of graduate education in Social Ecology. Prospective graduate students should contact the Social Ecology Graduate Counselor for more detailed information concerning the current research interests of Social Ecology faculty members.

M.A. Program

Two options are available for the completion of the requirements for the M.A.: (a) satisfactory completion of seven approved courses (at least five of which are graduate courses) and a thesis, or (b) satisfactory completion of nine approved courses (at least six of which are graduate courses) and a Comprehensive Examination. In either case, all M.A. students are required to take Seminar in Social Ecology (200), Research Methods (201A), and at least one additional course in statistics or methodology. These three courses are counted as part of the total course requirement. There are no specific requirements in regard to the other courses a student may take toward the M.A. The student should be guided by relevance to career goals, and the student's advisor must approve all courses. Completion of the M.A. requirements usually takes one or two years. The M.A. degree in Social Ecology does not prepare persons for specific careers but *may* be useful in obtaining a variety of positions. Many recent M.A. graduates are now employed in federal, state, county, and city agencies in such areas as planning, mental health and welfare, and probation and parole. A number of students with the Master's degree in Social Ecology have entered Ph.D. programs at other universities.

Ph.D. Program

The doctoral program offers advanced training that will prepare students for teaching and research positions. In addition, graduates may be particularly qualified for positions with private or governmental agencies where they can bring advanced academic training, insight, and expertise to bear upon issues such as environmental quality, urban plan-

ning, criminal justice, and functional and dysfunctional social behavior.

Each incoming Ph.D. student will be assigned a faculty advisor with whom the student should meet at least once every quarter to discuss an individualized program of graduate education. Required for all Ph.D. students are : (a) Seminar in Social Ecology (200), (b) a four-quarter sequence in research methodology and statistics (201A, 290A-B, 291), and (c) the seminar Issues in Social Interventions (213). All Ph.D. students will be formally evaluated at the end of their first year, at which time the evaluation committee may recommend that the student continue toward the Ph.D., complete the M.A. degree only, or cease graduate studies in the Program altogether. Prior to the award of the Ph.D., each doctoral student must serve as a Teaching Assistant under faculty supervision for at least two quarters.

All Ph.D. students are required to complete a research project of high quality before advancement to candidacy for the Ph.D. The method of research may include experiments, questionnaire and survey studies, systematic field observation, computer simulation, etc. It is expected that students will begin this project during their first year in residence and that it will be completed during the second year. The written report of the project may be equivalent to a Master's thesis, and may be submitted as such if the student has been advanced to candidacy for the M.A. degree.

Also required for the Ph.D. degree in Social Ecology is a written qualifying examination. This individualized procedure begins with a proposal by the student for the study of a social or environmental problem. The proposal will consist of a statement of purpose and an extensive reading list which covers the literature regarding: (1) historical analysis of approaches to that problem, (2) description or formulation of that problem from a social ecological perspective, (3) multidisciplinary methodologies for assessing the social or environmental problem, (4) social or environmental interventions that have been attempted or proposed, and (5) methodologies for evaluating the impact of such interventions. With the consent of their advisory committee, students next elect either to write an evaluative review of the "state of the art" in the selected problem area, this review to be of publishable quality, or to take a qualifying examination based on their studies in the problem area.

A student may be formally advanced to candidacy for the Ph.D. when the written qualifying examination and the

student's dissertation plan have been approved by the candidacy committee appointed on behalf of the Graduate Council. The student will appear before this committee for an oral examination. The dissertation plan will include a thorough examination of the history of the problem being proposed for investigation, its current status, the way in which the proposed research will further knowledge, and a detailed specification of the proposed method of approach to the problem.

Formal advancement to candidacy for the Ph.D. will be made by the Dean of the Graduate Division upon recommendation by a unanimous vote of the student's candidacy committee. Alternatively, the committee may recommend a course of action to strengthen the student for advancement to candidacy at a future date. When the student is advanced to candidacy, a doctoral committee will be appointed in the name of the Graduate Council. The doctoral committee, ordinarily consisting of three members of the faculty, will supervise the preparation and completion of the doctoral dissertation. The dissertation should be completed and accepted within one to two years, and no later than three calendar years after the student's advancement to candidacy.

The doctoral dissertation, the predissertation research project, and the qualifying written examination will often deal with closely related topics; therefore, the same faculty members will frequently serve on the committees responsible for guiding and approving these steps in the doctoral program.

SOCIAL ECOLOGY FACULTY

Ellen Greenberger, Ph.D. Harvard University, *Director of the Program in Social Ecology and Professor of Social Ecology*

Carolyn L. Ball, Ph.D. University of North Carolina, Chapel Hill, *Assistant to the Director of the Program in Social Ecology and Lecturer in Social Ecology*

Arthur S. Boughey, Ph.D. Edinburgh University, Scotland, *Professor of Social Ecology and Ecology and Evolutionary Biology*

Arnold Binder, Ph.D. Stanford University, *Professor of Social Ecology, Psychology, and Psychiatry & Human Behavior*

Ralph A. Catalano, Jr., Ph.D. Maxwell School, Syracuse University, *Assistant Professor of Social Ecology*

Ross F. Conner, Ph.D. Northwestern University, *Assistant Professor of Social Ecology*

- Thomas J. Crawford, Ph.D. Harvard University, *Associate Professor of Social Ecology and Psychiatry & Human Behavior*
- T. Timothy Crocker, M.D. University of California, San Francisco, *Professor of Medicine, Professor and Chairman, Department of Community & Environmental Medicine, and Professor of Social Ecology*
- Joseph F. DiMento, Ph.D., J.D. University of Michigan, *Assistant Professor of Social Ecology*
- C. David Dooley, Ph.D. University of California, Los Angeles, *Assistant Professor of Social Ecology*
- Kenneth W. Dumars, M.D. University of Colorado, *Associate Professor of Pediatrics, Physical Medicine & Rehabilitation, and Social Ecology*
- Gary W. Evans, Ph.D. University of Massachusetts, *Assistant Professor of Social Ecology*
- John V. Flowers, Ph.D. University of Southern California, *Assistant Professor of Social Ecology*
- Gilbert L. Geis, Ph.D. University of Wisconsin, *Professor of Social Ecology*
- Louis A. Gottschalk, M.D. Washington University Medical School, *Professor and Chairman, Department of Psychiatry & Human Behavior, Professor of Social Ecology and Social Science*
- Robert F. Meier, Ph.D. University of Wisconsin, *Assistant Professor of Social Ecology*
- John T. Monahan, Ph.D. Indiana University, *Assistant Professor of Social Ecology and Psychiatry & Human Behavior*
- Allen K. Murray, Ph.D. Michigan State University, *Assistant Adjunct Professor of Pediatrics and Social Ecology*
- Karen H. Nelson, Ed.D. Harvard University, *Lecturer in Social Ecology*
- Thomas L. Nelson, M.D. University of California, San Francisco, *Professor and Chairman, Department of Pediatrics, Professor of Social Ecology*
- Raymond W. Novaco, Ph.D. Indiana University, *Lecturer in Social Ecology*
- Betty H. Olson, Ph.D. University of California, Berkeley, *Assistant Professor of Social Ecology*
- John R. Ottensmann, Ph.D. University of North Carolina, *Assistant Professor of Social Ecology*
- Uwe Reischl, Ph.D. University of California, Berkeley, *Assistant Professor of Social Ecology*
- Benson Schaffer, J.D. Southwestern University School of Law, *Lecturer in Social Ecology*
- Peter L. Scharf, Ed.D. Harvard University, *Assistant Professor of Social Ecology*

- Steven J. Simmons, J.D. Harvard University, *Assistant Professor of Social Ecology (on leave)*
- Herbert J. Steger, Jr., Ph.D. University of Southern California, *Assistant Professor of Physical Medicine & Rehabilitation (Psychology) in Residence and Assistant Professor of Social Ecology*
- Daniel S. Stokols, Ph.D. University of North Carolina, *Assistant Professor of Social Ecology*
- Peter R. Welgan, Ph.D. University of Wisconsin, *Lecturer in Social Ecology and Assistant Clinical Professor of Psychiatry & Human Behavior*
- Carol K. Whalen, Ph.D. University of California, Los Angeles, *Associate Professor of Social Ecology and Psychiatry & Human Behavior*
- John M. Whiteley, Ed.D. Harvard University, *Associate Professor of Social Ecology*

UNDERGRADUATE COURSES

Principles and Methods

1 Principles of Social Ecology (4) F, S

Introduction to the ecological paradigm through a consideration of the classic and recent works in human, cultural, and social ecology. Emphasis on the use of the ecological paradigm as an aid in analyzing societal problems and prescribing for their amelioration.

10 Research Design (4) F, W, S

An introduction to the logic behind and methods of designing research studies and experiments in Social Ecology. Statistical reasoning discussed to the extent necessary for relevant data analyses. Prerequisite: Social Ecology 1, majors only.

11 Methods of Field Research (4)

Focuses on the processes of conceptualizing, carrying out, and reporting field research data in the areas of environmental psychology, mental health, and program evaluation. Unobtrusive observation, participant observation, the interview, and media techniques (e.g., video) will be covered. Discussion will include ethical issues and problems of objectivity and interpretation of field data. Lower-division students only.

12 Statistics and Data Analysis (4)

The use of probability models and statistics as decision-making aids in Social Ecology. Included in discussions are classical methods of inference, Bayesian analysis, and methods appropriate for imperfect data. Prerequisite: Social Ecology 10.

85 Science and Ethics (4)

Discussion of ethical problems which arise from man's social and technological development. Emphasis on population control, organ transplantation, genetic engineering, biological and chemical warfare, nuclear testing, etc. For each topic the focus will be

on establishing the psychological and sociological determinants of our present moral values.

113 Social Interventions (4)

Interdisciplinary course involving analyses of several social change issues common to Social Ecology subareas. Focus is on assessment for and design of social interventions in settings ranging from the small group through the community. Especially recommended to students concurrently taking field study.

164 Social Statistics (4)

Lecture and laboratory. Introduction to statistical analysis including discussion of sample size, distribution, test of hypothesis, types of error and significance, and level of confidence. Emphasis on the use of statistics in public health and biological analyses. Prerequisite: Social Ecology 12.

166A-B-C Social Science Statistics (4-4-4) F, W, S

Lecture, four hours; laboratory, three hours. Presents the statistical concepts and techniques most widely used in social science research and provides a practical experience, via Social Ecology 166D, wherein these are employed. The first two quarters are devoted to descriptive statistics. The third quarter focuses on inferential statistics. Weekly laboratories employ computer graphics to investigate concepts. Same as Social Science 100A-B-C.

166D Introduction to Survey Analysis (4) S

Seminar, three hours; laboratory, two hours. Student research teams analyze survey-generated data using the techniques from 166A-B-C. Students present their results at a symposium for that purpose. Concurrent enrollment in Social Ecology 166C is required. Same as Social Science 100D.

166H Techniques for Analyzing Numerical Data (2) W

Enables the student to utilize the analysis routines available within the Statistical Package for the Social Sciences (SPSS). Methods of data management and interpretation of computer output are covered. Students will also be introduced to FORTRAN programming. Prerequisites: Social Ecology 166A and concurrent enrollment in 166B, or consent of instructor. Same as Social Science 100H.

177 Senior Seminar in Social Ecology (4)

An overview of Social Ecology and discussion of its theoretical conceptualizations. The application of the concepts of Social Ecology to problems such as poverty, drug addiction, or planned communities. Prerequisite: Social Ecology 1.

Environmental Analysis

E5 Introduction to Environmental Quality and Health (4) W

A preliminary survey of man's interaction with his physical and biological environments. Components included are water, air, food, noise, and housing. Included are elements of environmental administration, environmental education, and consumer protection. International aspects of these factors examined.

E6 Fundamentals of Ecology (4) S

An introduction to the basic concepts in ecology: populations, communities, and ecosystems; the nature of diversity, stability, productivity, cycling and succession; resource utilization and modeling; regulatory mechanisms in ecosystems and the ecological and social consequences of their disturbances.

E7 Introduction to Planning and Public Policy (4) W

Objectives are to expose students to the "seminal works" concerned with the city; to describe the models of the city which have been derived from these works; and to demonstrate the nexus between the models and the policies pursued by the planning profession.

E19 Planning Practice (4) F

Introduces the operational techniques and procedures common to most public planning agencies and surveys the procedures peculiar to city, county, and regional agencies. Also considered are the variations among states in planning enabling legislation.

E30 Environmental Impact Studies (4)

Covers the new laws requiring the preparation of environmental impact statements before projects are allowed to begin. Conceptual framework and methods of analysis are reviewed through case studies.

E53 Man and Natural Disasters (4) W

Examines how public policies can intensify or reduce urban exposure to earthquakes, floods, drought, and other natural hazards. Includes physical traits of hazards and hazardous lands, economic and social pressures to risk hazard, current disaster scenarios, and current status of hazards planning. Local disaster preparedness plans will be reviewed. Two field trips.

E54 Man and the Oceans (4) F

Interaction of physical and social forces in the coastal and marine environment. Topics include: the ocean as cultural and political force in history, the ocean as natural phenomenon, the ocean as resource, the ocean as political phenomenon, new technology for ocean development, and the competition for marine resources.

E70 The Limits to Growth (4) F

An examination of the present predicament of mankind in terms of limited natural resources, industrial growth, population expansion, increasing pollution, and per capita food production. Study of problems involved in equating growth with progress, especially as outlined originally by the Forrester models, and subsequently developed by the Club of Rome and M.I.T.

E82 Legislative Process and Social Issues (4)

The role of Congress as it operates in present day American society, along with its present day relationship with the people, the President, and the Supreme Court, as well as its own operating procedure. Emphasis on how policy and legislation (environmental, civil rights, etc.) is made and how citizens are affected by Congressional elections. Speakers, such as presently serving United States Representatives or Senators, may meet with class.

E87 Environmental Psychology (4) F

Impact of the physical environment on individual and group behavior. Three basic concerns examined: (a) environmental determinants of behavior at the individual and interpersonal level; (b) social planning and urban design; and (c) methodological approaches to the study of environmental issues.

E89 Introduction to the American Legal System (4) F

A social ecological look at the American legal system. Investigates roles of courts, legislatures, executive branches, administrative agencies, and private citizens in attempts to respond to major social problems. Among the topics for analysis are environmental quality, free speech, domestic relations, and violent crime.

E102 Advanced Environmental Psychology (4)

In-depth treatment of theoretical and empirical work relevant to selected topics in environmental psychology. Students will go into the field in collaboration with architectural consultants and will develop environmental evaluation instruments, collect data, and report their findings to the architectural consultants. Prerequisites: Social Ecology 10 and E87.

E110 Introduction to Environmental Standards (4)

Examines water, ambient and work place air, noise, radiation, and pesticide standards. Each topic will be analyzed in terms of standard development, enforcement at state and federal levels, and the validity of the standard's ability to protect health. Prerequisite: Social Ecology E5 or consent of instructor.

E112A-B Design and Behavior (4)

E112A Tools of architectural analysis and programming are explored. Aim is to teach social scientists basic graphic communication tools. **E112B** Techniques of design evaluation are stressed from the perspectives of social science and architecture. Both interior and exterior design projects will be considered. Prerequisites: Social Ecology E87 for E112A; Social Ecology 10 and E112A for E112B.

E114 Methods of Systematic Planning (4) S of even years

An introduction to the rational planning model and its use in formulating public policy. Topics include the formulation of objectives, the analysis of the system being considered, and the evaluation of alternative plans. Prerequisite: Social Ecology 10 or consent of instructor.

E116 Mental Health and Social Policy (4) S

Topics include the relationship of economic status and economic change to mental and behavioral deviances, the relationship of social status to diagnosis and treatment, and cost/benefit evaluations of alternative community mental health interventions from consumer and policy perspectives. Prerequisites: Social Ecology 1 and S16.

E117 Seminar on Social Psychological and Organizational Aspects of Planning (4) F

Investigates, through field research, social psychological and organizational issues in planning including the organization of planning efforts, resistances to planning, capacities of humans to

plan, and the relationship of the environment to the planning effort. Prerequisite: Social Ecology E7.

E120 Topics in Applied Ecology (4)

A survey of how ecological concepts are used in dealing with selected environmental management problems, such as pollutant cycling, agricultural practices, water quality, pest management, and the promotion of desirable species. Legal, social, and economic implications of the topics will also be considered. Prerequisite: course in ecology or consent of instructor.

E125 Microbial Ecology of Natural and Polluted Waters (4) S

Examines microorganisms and their functions in the aquatic environment, specifically microorganisms' role in the biogeochemical cycles of nitrogen, sulfur, and mercury, and how man's activities are affecting these cycles. In addition, considers how and why indicator organisms are used in the determination of water quality for public health. Prerequisite: Social Ecology E5 or a course in biology.

E125L Microbial Ecology of Natural and Polluted Waters Laboratory (4) S

Covers experiments that deal with the enumeration and identification of microorganisms from various aquatic environments. Microbial mediation of the sulfur, nitrogen, and mercury cycles is examined in the laboratory. Public Health aspects of water quality are also examined. Prerequisite or corequisite: Social Ecology E125.

E140 The Chemical Components of Water Quality (4)

A survey of the chemical properties of water used for drinking, agriculture, and industry. The lecture portion of the course will cover basic chemical analyses of water and the significance of these tests in determining water quality. Prerequisites: Chemistry 1 and Social Ecology E5.

E141 Water Resources (4) S

Examines the role of state and federal agencies and judicial decisions which alter or mandate actions for the management of water resources in California. The relationship of water agencies and delivery systems, water rights, quality, and reclamation, and water conservation will be discussed in terms of management schemes. Prerequisite: Social Ecology E5.

E154 Environmental Applications of Remote Sensing Techniques (4) S

Explores the data acquisition capabilities of various remote sensors including infrared scanners, metric aerial cameras, multi-spectral cameras, and radar. Lectures, laboratory exercises, and field trips will demonstrate how geologic, soil, vegetation, environmental pollution, and land use information can be interpreted and applied to problems of urban/regional planning and environmental quality assessment. Prerequisite: Social Ecology 1 or E5 or consent of instructor.

E156A-B Methods of Environmental Testing: The Work Setting (4-4) F, W

Introduction to the science and art of identification, evaluation, and control of hazards and stresses prevailing in the work en-

vironment. Students will use field monitoring equipment to evaluate noise, heat, ventilation, lighting, particulate and gaseous pollutants in the air, and other factors relevant to industrial hygiene. Prerequisite: Social Ecology E5; a course in statistics or research is desired.

E158 Community Health: An Epidemiological Approach (4)

An examination of the distribution and dynamics of human health problems on the community level and exploration of the principles and procedures of scientific investigation used to determine circumstances under which diseases occur or health prevails. The broadened scope of epidemiology including environmental, genetic, nutritional, and social ramifications, in addition to the classical concern about infectious diseases and their role in social upheavals, is surveyed. Prerequisite: consent of instructor.

E160 Man, Food, and Nutrition (4)

Review and analysis of the usage of foods and the nutritional status of man. Principles of nutrition, recent food trends in America, such as "health foods," and the effects of malnutrition and hunger on the physical, behavioral, and mental development of man will be studied.

E162 Environmental Law (4) S

Environmental law is a combination of traditional legal principles and newly created statutes, rules, and decisions applied to the area of environmental protection. Course investigates roles of courts, legislature, executive branch and administrative agencies, and private citizens in attempt to regulate environmental quality. Federal and state laws are utilized.

E163 Environmental Perception and Cognition (4) F

Investigates the problem of how human beings acquire, process, and store information about the world as they experience it in real-world settings. The effects of learning, culture, and the physical environment on perception are examined, as well as how individuals form and store representations (cognitive maps) of their environment. Prerequisites: Social Ecology E87 and consent of instructor.

E165 Health and the Social Environment (4)

Focuses upon three major issues: the delineation and measurement of psychological, social, and cultural factors in the etiology of disease; analysis of variables which affect the extent of behavioral compliance on the part of individuals with prescribed medical regimens; and identification of factors which influence a community's response to public health programs.

E167A History of Water Pollution: Biological (4)

Sources of water pollution will be followed from the Middle Ages to the present. How these problems were viewed in relationship to health and to problem solving will be investigated. The design of the course is to acquaint the students with previous practices and to compare those practices with those used today. Prerequisite: Social Ecology E5 or consent of instructor.

E167B History of Water Pollution: Chemical (4)

Traces the history of chemical pollutants over the Nineteenth and Twentieth Centuries, including organics, heavy metals, and

inorganic compounds. Compounds will be reviewed in terms of their impact on human health and the aquatic environment.

E168 Economics of Ecology (4)

Investigation of the "maximize wealth" social goal to economic policy and environmental degradation; review of the historical and economic sources of the "maximize wealth" goal and its implications on the environment and population growth; exploration of alternate social goals for environmental protection policy and their implications.

E170 Human Evolution (4)

Surveys human evolution from the primate stage to the present. Topics covered include primate, hominoid and hominid evolution, various forms of *Homo*, cultural developments, settlement origins, and society evolution. Emphasis on cultural evolution in terms of environmental influences. Prerequisite: Social Ecology E6 or equivalent.

E171 Dynamics of Human Populations (4) W

Focuses on the dynamics of human populations. Topics include natality, morality, natural increase, in and out migrations, age distribution, life tables, carrying capacities and optimum population levels, fluctuations in and regulation of population densities. Various computer models of population dynamics demonstrated and operated during laboratory periods. Prerequisite: Social Ecology E6 or equivalent.

E172A-B Social Planning (4-4) F, W

Aimed at providing a conceptual framework for planned social change. Focus of first quarter is assessment of the setting, framework for design of organizational and community change attempts. Second quarter focuses on change attempts and articulation of strategies for implementation of social interventions. Participants will divide time between lectures and involvement in work groups. Plans will be evaluated by a jury of community representatives and other experts. Prerequisite: consent of instructor.

E173 Human Ecology (4) W

Lecture, three hours. Multi-media course. Consideration of demographic features, intrinsic rate of increase, and carrying capacity. Encompasses effects of human population on their environment, and also of environment of human populations, settlement patterns, and societal evolution. Prerequisite: Social Ecology E6 or Biological Sciences 101E, or consent of instructor.

E174 Seminar in Social Psychological Perspectives on Human Fertility (4)

Theory and research on the influence of personality needs and traits, social norms, and perceived costs and benefits upon child-bearing behavior. As project, students will be expected to design a study of social psychological causes and correlates of human fertility. Prerequisite: Social Ecology 10 or consent of instructor.

E176 Planning Theory (4)

Deals with "planning" in the generic sense, as well as public sec-

tor and urban planning. Topics include: "Planning – The Ultimate Presumption?," "Planning – The Ideal Context," "Planning vs. Democracy," "Planning – The American Context," "Planning is as Planners Do," and "Is it Better to Have Planned and Lost, Than Never to Have Planned at All?" Prerequisite: Social Ecology E7.

E177 Analysis of Metropolitan Areas (4) S

Hypotheses concerning the nature and problems of metropolitan areas are tested using statistical data. Introduction to the census and other sources of descriptive data useful in understanding public sector attempts to control the dynamics of urbanism. Prerequisites: Social Ecology E7 or E176.

E181 Land Use and Public Policy (4) F

An introduction to contemporary understanding of land use dynamics and their implications for urban and regional planning. Prerequisite: Social Ecology E7.

E182 Housing and Public Policy (4) S

The system of providing urban housing in the United States will be examined. Special attention will be given to the economic and social problems associated with the provision of housing for low- and moderate-income families. Existing and proposed government housing policies for alleviating these problems will be analyzed. Prerequisite: Social Ecology E7.

E197 Environmental Analysis Field Study (2-8 per quarter) F, W, S
Prerequisite: Social Ecology E5, E6, or E7.

E198 Directed Studies – Environmental Analysis (2-4 per quarter) F, W, S

E199 Individual Studies – Environmental Analysis (2-4 per quarter) F, W, S

Criminal Justice

J4 Introduction to Criminal Justice (4) F, S

Traces our legal system from its common law heritage. An introduction to criminal and constitutional law in the United States providing basis for discussion of our constitutional structure, corrections, probation and parole, and the police activities of arrest, search and seizure, and interrogations. Juvenile Court law and procedure discussed.

J30A-B Concepts of Criminal Justice: A Parallax View (4-4)

J30A Emphasis is on criminal law as it is actually practiced daily in the courts, and the how and why of decision making in the criminal justice system. Among the topics covered are the perspectives of the district attorney and public defender, legal elements of crime, overview of selected crimes, and legal theories of justification and mitigation.

J30B Emphasis is on criminal law as it is actually practiced daily in the courts, and the how and why of decision making in the criminal justice system. Among the topics covered are the functions of the prosecution, defense, and judiciary; the concept of proof and sentencing; and a comparison with foreign criminal justice systems.

J40 Forms of Criminal Behavior (4)

"Crime in the streets" and "crime in the suites" have aroused public concern. Political agitation surrounds crimes of violence; reformers demand equivalent sanctions against the white-collar criminal.

J41 The Police (4)

A socio-psychological study of the police. Examines the nature and structure of police organizations and discusses their relationship to the social environment.

J42 Juvenile Delinquency (4) F of 1978

An examination of patterns of delinquent behavior, theories of juvenile delinquency, and classic and contemporary research on proscribed behavior among juveniles.

J45 The Role of the Police in Our Changing Society (4)

An examination of the history and philosophy of police organization and administration with special emphasis on how society determines the role of the police and the influence of changing social conditions on the role of the police.

J80 The Nature and Function of Law (4)

A survey of man's relationship with law including an analysis of the theoretical and practical role of law in the evolution of western civilization with emphasis on modern American society.

J83 Politics of the Judiciary (4)

Analysis of inter- and intra-court relationships as they affect judicial power and resource allocation. Upper- and lower-court relations, the relationship between the judicial branch and the legislative and executive branches, and the relationships among the justices themselves examined.

J130 Seminar in Criminal Behavior (4) F

Focuses on a specific aspect of criminal activity, depending upon student and instructor interests. Possible subjects include crimes of violence, sexual offenses, political crimes, property crimes, and professional or organized crime, and are examined in depth, historically, cross-culturally, theoretically, and in terms of specific studies of aspects of the behavior. Students expected to prepare reports relating to the chosen topic.

J132 Delinquency and Juvenile Justice (4) W

An examination of the relationships among officially defined parameters of delinquent behavior, prevention and control programs, and the administration of juvenile justice. Particular emphasis on theoretical rationales for intervention, the delinquent as recipient of prevention-control efforts, and the roles of different agencies in administering juvenile justice. Introductory course on criminal justice helpful (Social Ecology J4).

J134 Crimes Without Victims (4) S

An examination of criminal offenses in which there are apt to be no complaining witnesses – homosexuality, prostitution, gambling. Implications of the use of criminal law to control these behaviors in terms of the individuals involved in the offenses, other persons, and the society in general are considered, and various alternative social policies are reviewed and evaluated.

J135 Police-Community Interaction (4)

A consideration of the role of police in a democratic society, including issues such as policing the ghetto and campus, corruption, centralization, violence, and disruption. Police agencies examined as a part of criminal justice, legal, governmental, and political systems.

J137 Criminal Procedure (4)

Mainly through examination of Supreme Court cases, course deals with important criminal procedure issues, including search and seizure, arrest, wiretap, stop and frisk, self-incrimination, entrapment, plea bargaining, double jeopardy, cruel and unusual punishment, right to counsel and jury trial. Fourteenth Amendment implications for indigent defendants analyzed. Police and other enforcement personnel invited to speak and answer questions in class on relevant issues.

J139 Strategies of Control: Imprisonment and Parole (4)

An examination of historical and contemporary resolutions to the dilemma posed by pressures to punish and control criminals and the need to preserve civil liberties and human dignity, of the politics of control strategies, of the future of imprisonment in a "free" society, of the use and misuse of parole and the indeterminate sentence, and of "alternatives" to incarceration.

J140 Prisons, Punishment, and Corrections (4)

A review of the history and present conditions regarding treatment of law violators. The conflict among rehabilitation, vengeance, and deterrent principles. Analysis of civil rights, racial antagonism, and politicalization in the contemporary American correctional system.

J141 Seminar in Criminal Justice (4) S

Selected topics in the field of criminal justice examined. Issues vary with the interests of the instructor and students, and include such topics as violent crime, political crimes, police discretion, and civil rights of prison inmates. Prerequisites: Social Ecology J4 and one other course in criminal justice.

J142 White-Collar Crime (4)

Criminal activity of business and corporate enterprise, both in terms of theoretical insights into the explanations of criminal behavior and in terms of social concerns with deterrence. The pioneering work of Edwin H. Sutherland and the contemporary investigations of Ralph Nader provide substantive background. Specific cases and specific forms of social response to white-collar crime reviewed.

J144 Criminal Law (4)

Deals specifically with substantive nature of criminal law as opposed to criminal procedure which is concerned with how the criminal law is enforced. Considers three types of crime: offenses against the person, including laws of homicide, assault and battery; offenses against habitation and occupancy, including laws of burglary and arson; and offenses against property, including laws of larceny, robbery, forgery, and counterfeiting.

J147 Law and Social Change (4)

An examination of the role of law in the creation and reform of

public policy. The emphasis is on the gradual or incremental nature of change inherent in the American legal process.

J181 Contemporary Legal Issues (4)

An in-depth analysis of current legal issues viewed from their political and constitutional perspectives. Issues to be studied to be determined by instructor and student interest. Prerequisite: consent of instructor.

J182 Legal Sanctions and Social Control (4) F

Examination of criminal sanctions as mechanisms of social control. Study to include the development, aim, and effectiveness of laws; the isolation of behavior to be controlled; the role of interests and power in determining content; issues of decriminalization.

J190A-B Psychology and the Law (4-4) J190A (F)

Focuses upon the psychological assumptions of the American legal system and mental health aspects of the provision of criminal justice services. Topics will include civil commitment, the insanity defense, competence to stand trial, jury selection, eyewitness identification, and the use of the police, courts, and correctional institutions in the prevention of behavior disorder. Prerequisite: course in psychology or mental health.

J197 Criminal Justice Field Study (2-8 per quarter) F, W, S

Prerequisite: Social Ecology J4.

J198 Directed Studies – Criminal Justice (2-4 per quarter) F, W, S**J199 Individual Studies – Criminal Justice (2-4 per quarter) F, W, S****Social Behavior****S9 Introduction to Human Behavior (4) W**

An introduction to models of human development and mental health, and the application of the scientific method to the study of social behavior. The differences among individual, group, and societal levels of analysis and intervention will be emphasized. S9 is offered in place of the formerly offered Introduction to Mental Health (2U) and Introduction to Human Development (3W).

S11A-B Human Development Over the Life Cycle (4) W, S

Overviews the influence of culture, norms, roles, and specific institutions upon cognitive and psycho-social dimensions of the human personality. Ego, behaviorist, and cognitive theories will be considered in an effort to understand the specific impact of such institutions as family, school, peer group, work place, and old-age home upon lifespan development.

S14 Introduction to Personality Development (4)

Study of personality development, focusing on theoretical issues and research literature. The approaches of social learning and psychodynamic theorists emphasized in a survey of processes of personality development from infancy through adulthood and old age. Lecture-discussion.

S17 Assessment Techniques in Human Development (4)

Various methods and tools for the assessment of developmental and educational problems described and analyzed. While a variety of techniques are presented, each student will define a prob-

lem and decide among alternative techniques for exploring a problem in either a critical review of existing literature or in an empirical study. Prerequisite: Social Ecology S9 (or the formerly offered 3W).

S20 Abnormal Behavior (4)

A survey of the characteristics of various types of behavior disorders and the methods used to alleviate or treat or deal with these disorders. Cultural, genetic, and biochemical bases of deviant patterns discussed and evaluated. Emphasis upon the interaction among the social, legal, and medical components of disordered behavior and society's reactions to its manifestations.

S21 Methods of Behavior Modification (4) S

A series of presentations of ongoing programs using behavior modification. Behavioral modification techniques are derived from psychological theories of learning and emphasize reinforcement and modeling. The techniques are applied in schools, clinics, homes, and hospitals to modify such behavior as child autism, reading disorders, self-slapping, sexual deviations, alcoholism, attention deficits, adult psychotic disorders, and phobic reactions. They are also used with children who are considered normal but who show minor behavioral problems.

S74A-B-C Moral Development and Just Communities (4-4-4)

F, W, S

A three-quarter sequence for freshmen exploring interpersonal, personal, and social issues based on principles of fairness and justice. Kohlberg's theory of moral development will provide a basis for establishing principles for resolving conflict. Both the living environment of a University residence hall and selected institutions of society will be analyzed in terms of moral development theory. Prerequisite: consent of instructor.

S74L Moral Development and Just Communities Laboratory (2) W

Intent of this laboratory course is to involve freshman students in the study of community problems in a variety of contexts as an auxiliary source of educational enrichment. Small group discussions and written assignments will foster critical analysis of the laboratory experience and its relationship to the rest of the freshman year. Examples of placements are: Fairview Hospital, UCI Medical Center, preschools in the area, and a veterinarian's office. Prerequisites: S74A and signature of instructor. Corequisite: S74B.

S74M Moral Development and Just Communities Laboratory (2) S

Second of a two-quarter sequence. Prerequisites: S74A-B, S74L, and signature of instructor. Corequisite: S74C.

S84 Community Psychology (4) S

Deals with the community orientation to the delivery of mental health care. The development of community mental health is described and various models for its practice are delineated. Techniques of evaluating the efficacy of community programs are explored. Prerequisite: Social Ecology S9 (or the formerly offered 2U).

S86 Introductory Social Psychology (4) F, W

Surveys three basic areas of psychological research and certain

issues of theoretical concern within each: (a) group dynamics; (b) interpersonal processes; and (c) attitude change. The relationship between microlevel research and social interventions at the societal level discussed in relation to problems such as media violence, poverty, racial conflict, and environmental degradation.

S101A-B Counseling Theory I and II (4-4)

Theoretical approaches and related counseling techniques examined, including client-centered, rational-emotive, transactional analysis, Adlerian, Gestalt, and behavioral counseling. Beginning relationship skills practiced in a laboratory section, using film and audio tapes.

S102 Modern Therapies (4)

An overview of such new approaches to counseling and psychotherapy as Transactional Analysis, Rational-Emotive Therapy, Reality Therapy, Transcendental Meditation, Behavioral Therapy, and Sexual Therapy.

S103A-B Methods of Group Therapy (4-4)

Theories and techniques of small group dynamics and structure reviewed and evaluated. Comparisons made among group methods of leadership development, conflict resolution, sensitivity training, social action, growth, and encounter. A laboratory in group experience will be included. Prerequisite: consent of instructor.

S104 Behavioral Assessment (4)

Laboratory-seminar exploration of various methods of observing and recording the behavior of young children. Focuses on the development of observational skills and the application of assessment techniques in intervention and research programs. Prerequisite: consent of instructor.

S105 Mental Retardation (4)

Explores current topics in intelligence testing, cultural-familial retardation, and organic disorders such as Down's Syndrome and Phenylketonuria (PKU). The focus will be on current research and theory. Ethical issues, such as the identification of "high risk" children, the rights of retarded citizens, and genetic engineering, will be considered.

S106 Atypical Child Development (4) F of even years

Childhood psychopathology, assessment strategies, and treatment modalities surveyed. Focuses on developmental differences, behavior disorders, and mental retardation. Surveys poverty and minority cultures, minimal brain dysfunction, schizophrenia, child abuse, and child advocacy.

S107 Therapies with the Developing Child (4) S of 1979

Diverse treatment modalities explored, including traditional and innovative forms of play and family therapy, behavioral approaches, educational intervention, and treatment with psychoactive drugs. Relevant theories, specific techniques, studies of therapeutic outcomes evaluated and compared.

S110 The Social Ecology of Stress (4) S

The construct of stress as developed by Selye is examined. Subsequent extensions of the concept including physiological levels

of analysis and social and psychological notions of stress are discussed. The relationship between psychological stress and environment-behavioral congruence is explored in the context of planning for built and natural environments. Prerequisites: Social Ecology 1 and 10.

S114 Aggression: Theories and Research Methods (4) F

Explores divergent theoretical conceptions of aggression, various techniques of assessment used in experimental investigations of aggression, and the research paradigms in which such investigations are conducted. Emphasis will be placed on the student's understanding of theoretical and methodological issues — e.g., instinctual vs. learning views; operational analysis vs. intentional action concepts; formulations of aggressive drive, the catharsis controversy, the impact of T.V. violence, the effects of punishment, etc. Prerequisite: Social Ecology 10.

S116 Peer Counseling (4) F

Introduction to paraprofessional counseling with adults. Reviews assumptions, goals, and verbal strategies of three relevant therapy models — analytic, humanistic, and behavior modification. Selected topics: crisis intervention, suicide prevention, drug abuse, sex-role behavior, intimacy problems, and referral sources.

S119 Extreme Environments and Human Functioning (4)

Explores effects of extreme environments upon human functioning. Environments exerting "unusual" stress upon individuals will be main focus (e.g., concentration camp, prison, spaceflight, mental hospital, etc.). Task will be to draw analogies with more "normal" settings (school, factory, family) in order to better understand their effects upon human functioning.

S120 Anger and Violence in Society (4)

An overview of current theory and research on aggression followed by a focus on anger and violence as problems in individual and social functioning. The process and functions of anger are examined with regard to normal behavior and psychopathology. The determinants, prevalence, and implications of violence in society are analyzed.

S121 Seminar in Behavior Change Techniques (4) W of 1979

Presents various behavior change techniques derived from learning theory. The need for assessment and the match of appropriate assessment to the intervention employed are stressed. Individual presentations and the design of one behavioral change project will be required of all students. Prerequisite: Social Ecology S21 or consent.

S122 Human Sexuality (4)

A broad survey of human sexuality encompassing genetic factors, physiological and anatomical development, customary and atypical forms of behavior, reproductive processes, and cultural determinants.

S124 Human Groups (4) S

The impact of the group on its individual members and the systemic properties of social units. These issues will be examined from both sociological perspectives (Durkheim, Weber, Marx, Merton) and social psychological orientations particularly as

reflected in the group dynamics literature. Prerequisite: Social Ecology S86 or consent of instructor.

S125 Special Topics in Adult Development (4)

Examines the role of culture, social roles, and age norms on selected aspects of social and cognitive behavior. Different periods of adult development (early adulthood, old age) may be the focus of attention in different years. Emphasis is on developmental theory and on the research it has generated. Prerequisite: Social Ecology S11 (or the formerly offered 3W).

S127D-E-F Practicum in Early Child Development (4)

Students will assist in teaching children at the UCI Children's Center or Verano Place Preschool and in developing materials for use there. The children range in age from two to five. Students will be chosen through interviews from those who attend the first class meeting. Prerequisite: Social Ecology S9 (or the formerly offered 3W or 29W).

S128 Perspectives on the Development of the Child (4)

Lectures and discussion provide a forum for investigating developmental issues in detail. Requires commitment to critical analysis of theoretical issues and to analysis of implications of selected theoretical perspectives. Prerequisite: Social Ecology S9 (or the formerly offered 3W).

S129 Human Development and Race, Culture, and Class (4) F

Observed variations in human development related to differences in culture, race, and social class. Focuses on the following aspects of human development: Cognitive, Social and Personality, Socialization and Family Interaction, Educational Systems. Prerequisite: course in human development or child development or consent of instructor.

S130 Political Socialization and Human Development (4)

Broad study of the social (including peer, family, school, and religious), cultural (environmental), and biological forces which shape political human development over the life span. Socialization as a concept and theories of political socialization with special emphasis on development will be examined. Student responsibilities: readings, paper or project, class presentation.

S131A-B Special Topics in Social Psychology (4)

Advanced undergraduate seminar which explores specific theoretical and empirical issues within three main areas of social psychology: (a) attitude change, (b) interpersonal processes and group dynamics, and (c) the impact of the physical environment on social behavior. Students should have an introductory background in social psychology before taking the course. Prerequisite: Social Ecology S86 or consent of instructor.

S134 Human Development and Cross-Cultural Perspectives (4)

Examines cultural variations in cognitive and personality dimensions, family structure and kinship patterns, and socialization practices. Special attention will be devoted to consideration of developmental theory in light of individual and cultural adaptation to different environments. Prerequisite: a course in human development.

S138A-B Attitude Organization and Change (4-4) W, S

S138A Definitions and measures of beliefs and attitudes; source, message, and audience effects in communication and persuasion; introduction to cognitive consistency theories.

S138B Relationship between attitudes and behavior; dissonance theory and self-perception theory; expectancy value theories of behavioral intention, implications of attitude theory and research for social action programs. Prerequisite: Social Ecology 10 or consent of instructor.

S140 Society and Personality Development (4) F

Approaches to the study of personality and personality development will be explored, with emphasis on social learning and psychodynamic theories. The issue of trait vs. situational determinants of behavior will be examined, and the utility of personality constructs as a basis for community intervention programs will be discussed. Prerequisite: Social Ecology S9 (or the formerly offered 3W or 29W).

S145 Perspectives in Child Rearing (4)

The impact of different child rearing practices on the development of personality and character. Examination of the effects on development of variations in the structure and dynamics of the family and school, and of the consequences of group care, working mothers, and the one-parent family. Prerequisite: Social Ecology S9 (or the formerly offered 3W).

S161 Family Law (4) F

The practical and theoretical problems of family law, centering around the subject areas of marriage, divorce, parent-child law, property division, and spousal and child support. Course will use the law school technique of case study.

S162 Minorities and the Law (4)

Focuses on legal issues of concern to America's minorities, including Afro-Americans, Chicanos, and Native Americans. Several legal aspects of the contemporary women's rights movement will also be examined.

S163 Women and the Law (4)

Investigation of various problems concerning legal rights of women in areas of economics, politics, medicine, marriage, and social life. Students required to conduct individual or team research projects on special legal problems and present findings to class.

S168 Psychological Education (4)

Investigation of theoretical foundations of a number of educational programs designed to stimulate greater social, affective, and moral maturity in adolescents. Several theoretical perspectives will be considered, including neo-psychoanalytic (Gestalt), cognitive-developmental (Piaget and Kohlberg), and behavioral (Skinner) orientations.

S172A-B Philosophic Issues in Psychology (4-4)

Lecture-discussion class inspects the historical, epistemological, and ethical roots of modern psychology with specific emphasis on the developmental and clinical areas. Examples of topics: the influence of Plato's thought on the developmental theories of

Kohlberg and Piaget, the influence of Hume on modern scientific psychology, the mind-body problem of Descartes, and the psychology of Rogers. Prerequisite: Social Ecology S9 (or the formerly offered 2U or 3W).

S176 Images of Society (4)

A critical search for an appropriate social metaphor for man in light of the conceptual goals of the Social Ecology program. Works of Marx, Durkheim, Weber, Freud, Mills, Merton, Mead, and the Chicago School will be considered. Prerequisite: Social Ecology 1.

S197 Social Behavior Field Study (2-8 per quarter) F, W, S

Prerequisite: Social Ecology S9 (or the previously offered 2U or 3W).

S198 Directed Studies – Social Behavior (2-4 per quarter) F, W, S**S199 Individual Studies – Social Behavior (2-4 per quarter) F, W, S****GRADUATE COURSES****200 Seminar in Social Ecology (4) F**

Students are introduced to the classic and contemporary literature of human and social ecology and are expected to use the ecological paradigm to analyze social phenomena of interest to the differing subprograms.

201A Research Methods (4) F

In-depth analysis of the conceptualization of research and the design of appropriate research strategies. Topics covered are experimental design, questionnaire and interview construction, and observation techniques. Prerequisite: previous course work in statistics.

201B Advanced Research Methods (4)

The second in a two-quarter series of methodology courses. Continues the presentation of social research methods and designs introduced in 201A, with some added emphasis on their use in the evaluation of social programs. Primarily for students in the M.A. program.

202 Issues in Environmental Psychology (4)

Seminar providing in-depth treatment of theoretical and empirical work relevant to selected topics in environmental psychology. Among the topics considered are housing quality and human behavior, the designs of learning environments, human development and environmental design, and the psychological impact of the urban environment.

203 Social Ecology of Sex Differences (4)

Recent research on sex differences in physical development, intelligence, social patterns, adult-child interaction, and behavioral deviance will be reviewed. Current psychological and biological theories of sex differences will be evaluated in terms of data from a variety of scientific disciplines, and implications for contemporary social problems will be explored.

204 Research Seminar on Adolescence (4) S

Students will formulate and carry out a research investigation in the general area of social influences on adolescent development.

Use of available, extensive survey data will be encouraged. Discussion of selected topics in the study of adolescence and of methods and problems of data analysis as they emerge from students' research.

205 Issues in Social Psychology (4)

Provides in-depth treatment of theoretical and empirical work relevant to selected topics in social psychology. Theories of attitude change, group dynamics, and attribution are applied to such problems as overpopulation, environmental degradation, media violence, and racial conflict.

Pupil Personnel Services. Courses 206, 207, 208, and 209A-B-C are offered as a service for those Master's degree students who are interested in obtaining the Pupil Personnel Services Credential (see p. 245).

206 Guidance Services for Facilitating Human Development (4) Summer

Consideration of techniques of applying knowledge of human behavior to assist students in their growth and development; how to apply theories of learning and development of curricular tasks; and present available remedial and developmental techniques and special programs available to students. Preventive counseling techniques such as deliberate psychological education will be considered, as well as ethical principles of the profession.

207 Counseling Skills for Facilitating Human Development (4) Summer

Focuses on promoting understanding and respect for individual differences, the development of individual potential and competencies through knowledge of and ability to apply acceptable individual and group counseling techniques to promote positive attitudes toward self and others. Skill development in basic human helping techniques will be taught. Prerequisite: consent of instructor.

208 Assessment Techniques (4) Summer

Development of competencies in the ability to give and interpret standardized group and individual assessment techniques with special emphasis on those in use in the public schools. Theories and techniques to understand affective, cognitive, and behavioral characteristics of both typical and atypical children will be presented, along with knowledge and understanding of different types of test biases, including cultural and statistical test biases.

209A-B-C Supervised Counseling Experience (4-4-4) F, W, S
Development of the ability to apply counseling techniques, both individual and group, through supervised practice under observation will be the focus. Weekly individual and group supervision will be supplemented with lectures on counseling from a developmental framework and its application to different age groups. Prerequisite: consent of instructor.

210 Seminar in Community Psychology (4) S

The historical development of community psychology and various models for its practice are described. An analysis of the persistence of problems within social systems is linked to social intervention strategies. The impact of the social environment on

physical and psychological health are studied as a function of contemporary stress factors.

212 Seminar in Behavioral Assessment (4) S

After reviewing the theoretical and empirical literature on assessment strategies, students will design and implement behavioral assessment programs tailored to specific problem areas in schools, hospitals, and community settings. Measurement problems, ethical dilemmas, and potentials for community applications will be reviewed. Prerequisite: course in developmental biology.

213 Issues in Social Intervention (4) W

Issues in assessment and design of social interventions are covered. These include systems analysis in social settings, role of the social interventionist, problems of entry, assessment of systems ranging from small group through the community, and planning of social change.

215 Research Issues in Group Process (4)

Prepares the graduate student to design and execute research in group interactive settings. The particular emphasis is on group interventions as they are employed to change behavior in mental health, human development, and criminal justice facilities. Design of a research project on group process is required. Prerequisite: consent of instructor.

216 Research Issues in Assertion Training (4)

Introduces the graduate student to methods of assertion training by means of discussion, laboratory experiences, and guided practice. Prepares the student to do both process and outcome research on a variety of social skills training methodologies. The design of a research project is required. Prerequisite: consent of instructor.

217 Nonprofessional Change Agents Seminar (4)

Issues in selection, training, and development of nonprofessional social change agents and the emerging role of the nonprofessional in community psychology and social ecology. Techniques in assessment and selection of nonprofessionals and a critical review of brief training techniques. Prerequisite: consent of instructor.

218 Mental Health and Social Policy Seminar (4)

Issues in the economics of mental health delivery and primary prevention, problems in relating mental health epidemiology to economic indicators and fiscal policy, evaluation of alternative social interventions from the standpoint of costs and benefits, and the trend towards program accountability.

220 Developmental Psychology (4)

Survey of theory and research. Coverage includes growth and development of sensory, motor, and cognitive processes and of personality. Emphasis is on the impact of the social environment on development. Prerequisite: course work in child or adolescent development.

221 Seminar in Atypical Child Development (4)

An atypical syndrome such as minimal brain dysfunction or early childhood autism will be selected for intensive analysis.

Studies of biological functions, psychological processes, family variables, intervention strategies, legislation, and community programming will be explored and integrated. Methodology and evaluation will be emphasized.

223A-B Intervention Strategies for Moral and Psychological Development (4-4) F, W

223A Emphasizes theory development and research methodology from several perspectives including Kohlberg, self theory, Piaget, and ego psychology. Four levels of intervention will be studied: 1) individual, 2) two-person, 3) classroom, and 4) institutional. Students are expected to analyze ongoing interventions, and develop and implement their own interventions. **223B** A continuation of 223A with an emphasis on implementing projects and curricula derived in 223A. Prerequisite: consent of instructor.

224 Behavioral Epidemiology (4)

Surveys the field of behavioral epidemiology, focusing upon three central issues: 1) the role of psychological, social, and cultural factors in the etiology of disease; 2) analysis of variables which affect patients' compliance with prescribed medical regimens; 3) identification of factors which influence a community's response to public health programs. Prerequisite: consent of instructor.

226 Youth in Society (4) W

Examines the role of youth in society and the role of society in the psychosocial development of youth. Considers the historical emergence of youth as a subculture, the nature of youth cultures, the structure and function of adolescent social arrangements, and the participation of youth in the family, school, economy, and political arena. Students who wish to pursue specific research related to youth in society may wish to elect Social Ecology 204 the following quarter. Prerequisites: Social Ecology 200 and consent of instructor.

227 Seminar in Social Behavior (4)

Focuses on a single problem area, investigated from a developmental perspective. Intensive discussion of developmental processes is accompanied by individual or small group projects addressing specific research problems. Requires willingness to address unsolved theoretical problems while attempting to define or solve a more manageable problem. The problem area will be announced each year. Prerequisite: course in developmental psychology.

228 Marriage and the Family (4)

Studies, both in this society and cross-culturally, the historical and present status of the roles of the institution of marriage and the functions performed by the family. Changing conceptions of the different responsibilities of marriage partners and sex role expectations will be considered.

229 Approaches to Marriage and Family Counseling (4)

A survey of the different approaches to marriage and family counseling with an examination both of the theoretical assumptions and the therapeutic techniques employed.

232 Seminar in Juvenile Delinquency (4)

Examines the major theories of juvenile delinquency, prevention and control programs, and the administration of juvenile justice.

234 Urban Society and Crime (4)

Explores possible explanations for the pervasive racial, economic, and cultural bias prevalent in substantive criminal law and its administration. A limited number of areas will be explored in depth in order to understand the bias behind the rhetoric of civil liberties and equal justice. Prerequisites: courses in criminal justice and consent of instructor.

235 Theories of Crime (4) F

Explanations for the cause of crime often tell as much about the structure and ideology of a social system as they do about violations of the criminal law. The course will examine the positions of thinkers such as Bentham, Freud, Marx, Lombroso, and Sutherland, as well as those of the current labeling theorists, who believe that crime is primarily a function of the distribution of power and of tactics of the strong denigrating acts of the weak. Prerequisite: consent of instructor.

237 Violence and its Social Impact (4) W

The history of violence in our society and its effect on communities and social institutions will be reviewed. Violence will be presented in terms of theories of aggression and of crime as applied to the behavior of individuals, groups, and corporations. Suggestions are made for social policy regarding violence prevention. Prerequisite: Social Ecology 200 or consent of instructor.

240 Planning for Seismic and Environmental Hazards in Urban Areas (4)

Concepts related to seismic risk, landslides, tsunamis, building performance, and planning for earthquake-hazardous areas will be considered. Problems related to grass fires will also be discussed. Students will undertake projects related to own special interests.

242 Urban Ecosystems (4) S

Lecture, discussion, and composition. Evolution of human settlement patterns and their environmental interactions. Development and fundamental behavior bases of education, communication, transportation, recreation, and other systems. Prerequisite: consent of instructor.

245 Social Science and the Legal Process (4) W

Examines social science methods for understanding and affecting the legal process. Emphasis will be on a current legal issue. The class will provide, through its research and legal analysis, input into the adjudication of the issue under consideration.

250 Metropolitan Analysis Seminar (4) S

Students are introduced to sources of data which they will collect to test hypotheses concerning urban systems. Prerequisite: Social Ecology 200.

252 Man and the Environment (4)

The core issue of this course is the impact of the physical environment on individual and group behavior. Three basic concerns are examined: environmental determinants of behavior at

- the individual and interpersonal level; social planning and urban design; and methodological approaches to the study of environmental issues.
- 253 Urban Planning (4) S**
A survey of the models of urbanism assumed by professional planners and of the tools and powers at their command. Students will assess the likely effectiveness of planning efforts given those tools and the complexity of urban dynamics.
- 256 Politics of Plan Implementation (4)**
Survey and discussion of the literature concerned with the politics of plan implementation. Students will conduct and present analyses of political settings relevant to planners. Prerequisite: Social Ecology 200.
- 257 Social Indicators (4)**
A survey of the social indicators literature and presentation of individual projects attempting to devise indicators of social phenomena. Prerequisite: Social Ecology 200.
- 259 Social Psychological Perspectives on Community Problems (4)**
Social psychological theories and methodologies will be applied to an analysis of population problems, environmental degradation, racial conflict, media violence, and international tensions. Among the conceptual frameworks emphasized are theories of attitude change, group dynamics, and attributional processes. Prerequisite: consent of instructor.
- 263 The Spatial Structure of Urban Social Problems (4) F**
Begins with an examination of theoretical approaches for the analysis of spatial dimensions of urban social problems. Normative issues arising in spatial systems are discussed. This foundation is then used to examine the spatial dimensions of selected urban social problems. Problem selection will reflect student interest; possibilities include housing, transportation, education, poverty, health care, and the provision of public services.
- 265 Seminar on Spatial Behavior (4) S**
Phylogenetic aspects of spatial behavior among diverse species are explored. At the human level, four basic spatial behavioral constructs are discussed: territoriality, privacy, personal space, and crowding.
- 266 Advanced Seminar in Environmental Cognition and Behavior (4)**
Undertakes an in-depth analysis of research in human information processing that is applicable to perceiving and conceptualizing the environment. Emphasis is placed on the critical analysis of theoretical constructs. Also examines the importance of motivational and emotional structures on environmental conceptualizations.
- 267 Human Stress and the Environment as Stressor (4)**
Sources of stress from the biological, psychological, social, and physical environments are examined with respect to their impact on personal health, behavior, and the functions of social systems. Stress is presented as a multidimensional concept that can profitably be studied by an ecological analysis of determinants and outcomes. Prerequisite: Social Ecology 200 or consent of instructor.
- 268 Seminar in Environmental Psychology (4) F**
Provides an overview of major theoretical and research perspectives within the field of environmental psychology. These perspectives are discussed in terms of their value for behavioral sciences projects launched in the community.
- 272A-B Seminar in Philosophic Issues in Community Mental Health and Human Development (4-4)**
Inspects the historical and epistemological roots and ethical issues of modern psychology with specific emphasis on the developmental and clinical areas. Examples of topics covered are the influence of Platonic idealistic thought on the developmental theories of Freud, the dualism of Descartes and the influence of dualism in the psychological approaches of Rogers, the influence of Berkeley and Locke on modern behaviorism, etc. Prerequisite: consent of instructor.
- 273 Seminar in Consultation (4) F of even years**
Compares theories and strategies of effective consultation. The consultant's roles as educator, evaluator, and social change agent are stressed. Projects will be required. Prerequisite: Social Ecology 200.
- 275 Ethical Issues in Intervention (4) F of odd years**
Inspects the ethical problems and assumptions inherent in attempted social and individual intervention. Focuses on the areas of education, mental health, and criminal justice as well as exploring ethical issues involved in research with human subjects.
- 281 Wastewater Treatment (4)**
Will present current concepts in wastewater treatment. Some lectures will be given by officials in the State Department of Public Health and the regional water quality control boards, as well as individuals from local water districts. The goal of the course is to integrate wastewater technology with water pollution policy. Prerequisite: consent of instructor.
- 282 The Industrial Hygiene Significance of Industrial Processes (2)**
Industrial hygiene and occupational health problems associated with various industrial processes will be studied. Field trip to factory for observation of specific industrial processes and lectures by professional industrial hygiene personnel will provide the background for student seminar presentations. Prerequisite: consent of instructor. Please note this class is worth two units.
- 283 Seminar in Environmental Health and Quality (4)**
Concepts and principles of environmental health. Areas of focus will be industrial hygiene, water and air quality, noise pollution, and environmental carcinogens. Past and present theory and implementation practices will be discussed through review of legislative measures and enforcement procedures. The social and biological interaction surrounding each topic will be examined.
- 290A-B Advanced Statistics (4) W, S**
Study of the axiomatic bases of statistics and of the logical relationships between empirical decision making and the deductions

from mathematical models. Appropriate models for social ecological research are included in the following categories: correlation and regression, factor analysis, nonparametric tests, contingency analysis, the analysis of variance, and specialized sampling. Prerequisites: Social Ecology 201A and previous course work in statistics. Intended for students in the Ph.D. program.

291 Program Evaluation (4) F

Students are introduced to the use of research techniques and statistical methods in assessing the effectiveness of social programs. Different evaluative models will be discussed using examples of actual program evaluations. Prerequisites: Social Ecology 201A and 290A-B. Intended for students in the Ph.D. program.

292 Seminar in Evaluation Research (4) S

Intensive analysis of several issues in the field of evaluation research. Topics will be drawn from current research issues involved in assessing the effectiveness of social reform projects (e.g., theory and models of evaluation research, role of evaluation researcher). Prerequisites: Social Ecology 201A, 290A-B, and 291, or consent of instructor.

297 Graduate Level Field Studies (2 to 4 per quarter) F, W, S

298 Graduate Level Directed Studies (2 to 4 per quarter) F, W, S

299 Graduate Level Individual Study (2 to 4 per quarter) F, W, S



Department of Physical Education

Linda B. Dempsay Acting Chairman

The Department of Physical Education, founded by the late Dr. Wayne H. Crawford, reflects a new approach to the organization of three closely interrelated programs: Physical Education Activity Classes, Intercollegiate Athletics, and Recreation. The Department's faculty and professional staff are dedicated to providing each student with the opportunity to participate in a broad program of physical activities, sports, and recreation. Students electing physical education activity classes which include course offerings in 11 intercollegiate sports may receive partial credit towards a degree up to a total of one course credit. No degree in Physical Education is offered.

RECREATION

All officially enrolled students, as well as faculty and staff personnel, are encouraged to participate in the Recreation Program offered by the Physical Education Department.

Intramural activities feature men's, women's, and coed team sports, as well as many individual and dual sports. Team sports include flag football, volleyball, basketball, softball, and such innovative activities as coed innertube water polo, coed ice broomball, and floor hockey. A sampling of individual and dual sports includes track and field, cross country, one-on-one basketball, tennis, golf, handball, racquetball, two-person volleyball, and over-the-line softball.

Sports clubs provide students, faculty, and staff with specialized instruction and/or competition with other college, university, and amateur clubs in Southern California. Club offerings include aquatics, aikido, archery, badminton, bowling, fencing, folk dance, gymnastics, handball, ice hockey, judo, karate, lacrosse, photography, physical fitness, racquetball, rugby, sailing, snow skiing, soccer, surfing, and table tennis.

Leisure-time recreation is available on a scheduled basis throughout the year. Students, and faculty and staff personnel who have a Recreation Sports Privilege Card, may utilize the Crawford Hall facilities when they are open and not scheduled for other programs.

Members of the campus community who would like additional activities or clubs offered or desire further information may contact the Recreation Office, 1368 Crawford Hall, (714) 833-5346.

Recreational Facilities

Recreational facilities on campus include a gymnasium with activity areas for badminton, basketball, combatives, gymnastics, fencing, volleyball, and weight training; baseball and track stadiums; outdoor basketball and volleyball courts (lighted); six indoor four-wall handball/racquetball/squash courts; swimming pool; 12 tennis courts (6 lighted); and expansive playing fields.

INTERCOLLEGIATE ATHLETICS

The UCI Physical Education Department offers intercollegiate competition in eleven sports, fielding men's teams in eleven sports and women's teams in five sports. Information on current coaching staff or a specific sport may be obtained by contacting the Physical Education Department Office, (714) 833-6931.

The women compete in the Association of Intercollegiate Athletics for Women (AIAW) as a member of the Southern California Athletic Association (SCAA). The women's tennis continues to be ranked among the best in the United States, while the volleyball team has also achieved national rankings in recent years. Swimming and basketball are in their second year of competition and track and field/cross country will make its debut as a team this year. Sports under consideration for inclusion in the women's program are golf, gymnastics, and softball.

The men compete in the National Collegiate Athletic Association (NCAA) Division I, as a member of the Pacific Coast Athletic Association (PCAA) and the Southern California Volleyball Association. Irvine's crew and sailing teams compete in the Western Sprint Championships and the Pacific Coast Intercollegiate Yacht Racing Association, respectively. The sports offered are baseball, basketball, crew, cross country, golf, sailing, swimming, tennis, track, volleyball, and water polo. In just 12 years, UCI has won a total of 15 NCAA championships, while more than 50 UCI athletes have captured NCAA individual titles. In addition, UCI has won team championships in seven different sports, a feat matched by only one other school in any division of the NCAA.

PHYSICAL EDUCATION FACULTY

- Raymond H. Thornton, Ph.D. University of Southern California, *Chairman of the Department of Physical Education and Director of Athletics* (on leave)
- Linda B. Dempsay, M.A. University of California, Berkeley, *Acting Chairman of the Department of Physical Education and Acting Director of Athletics*
- Eddie D. Allen, B.S. University of Southern California, *Lecturer in Physical Education, Men's Baseball Coach*
- Sharley A. Buhlig, B.S. California State University, Fullerton, *Lecturer in Physical Education, Women's Volleyball Coach*
- Mildred F. Burns, B.S. Northeastern Oklahoma State University, *Lecturer in Physical Education, Women's Basketball Coach*
- Robert K. Hartman, *Lecturer in Physical Education, Men's Golf Coach*
- Peter H. Hofinga, M.S. Baylor University, *Associate Supervisor in Physical Education*
- Doreen Irish, M.A. California State University, Los Angeles, *Lecturer in Physical Education, Women's Tennis Coach*
- Albert M. Irwin, B.A. College of the Pacific, *Supervisor in Physical Education*
- Myron C. McNamara, B.A. University of Southern California, *Lecturer in Physical Education, Men's Tennis Coach*
- Leonard A. Miller, M.S. University of California, Los Angeles, *Lecturer in Physical Education, Men's Track and Field and Cross Country Coach*

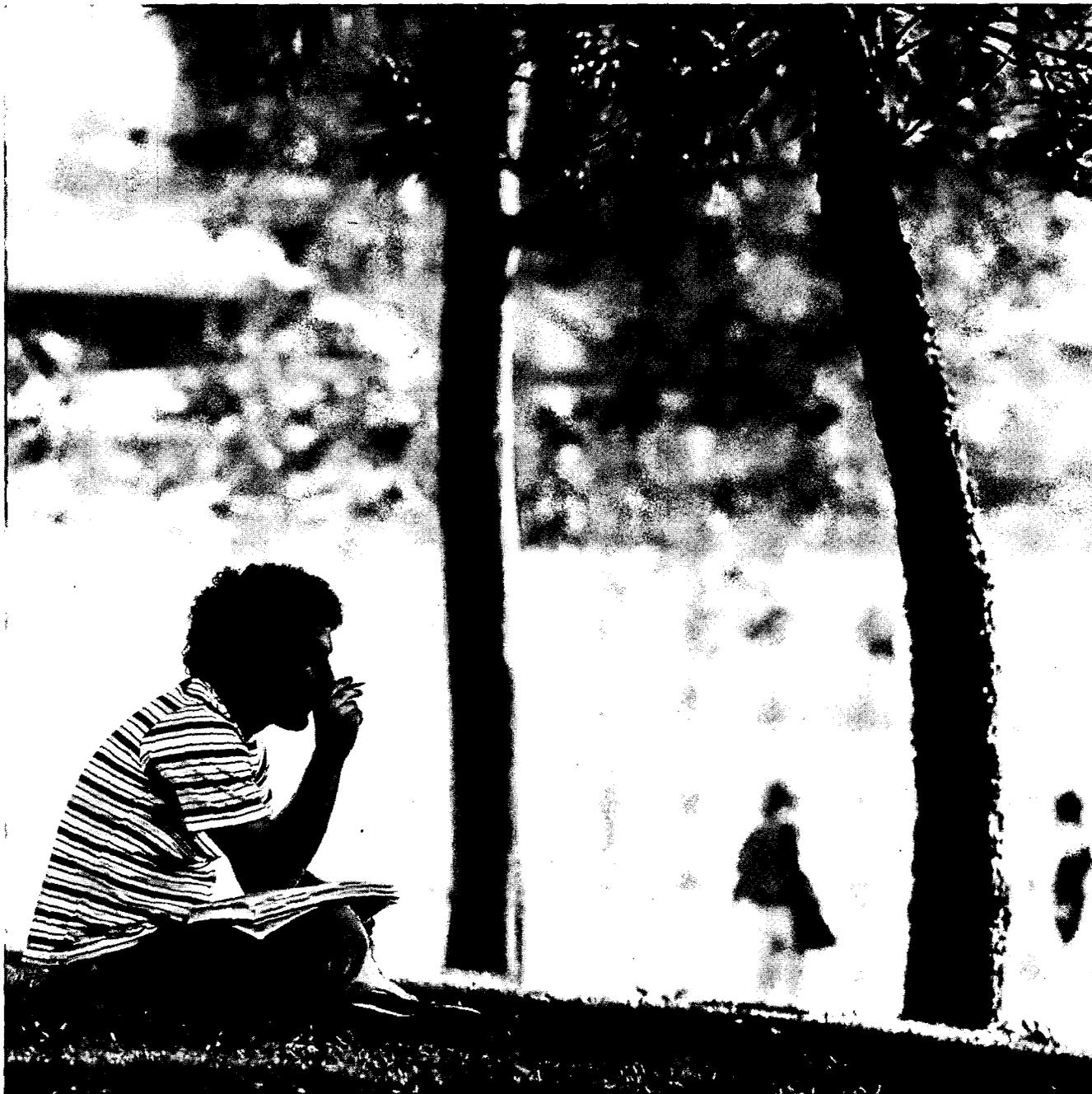
- Edward H. Newland, B.A. Occidental College, *Lecturer in Physical Education, Men's Water Polo Coach*
- Robert C. Newman, B.S. University of California, Los Angeles, *Lecturer in Physical Education, Men's Rowing Coach*
- Miles A. Pabst, B.A. California State University, Long Beach, *Lecturer in Physical Education, Men's Volleyball Coach*
- Carl Reinhart, B.A. University of California, Irvine, *Lecturer in Physical Education, Sailing Coach*
- An Simmons, *Lecturer in Physical Education, Women's Swim Coach*
- Thomas R. Spence, B.A. University of California, Irvine, *Lecturer in Physical Education*
- Timothy M. Tift, M.A. Pepperdine College, *Lecturer in Physical Education, Men's Basketball Coach*
- Henry Vellekamp, B.A. University of California, Santa Barbara, *Lecturer in Physical Education, Men's Swim Coach*

COURSES

The instructional classes emphasize activities and sports that students may continue throughout their adult lives and are of particular interest in Southern California.

1A-B-C Physical Education (.7 per quarter) F, W, S

May be repeated. Activity sections in archery, badminton, basketball, equitation and horsemanship, golf, handball, lifesaving, physical fitness, racquetball, sailing, soccer, softball, swimming, tennis, volleyball, water safety instruction, and weight training. Intercollegiate athletic sections in baseball, basketball, crew, cross country, golf, sailing, swimming, tennis, track and field, volleyball, and water polo.



Professional Education

UC IRVINE - 1977-1978

Education of Teachers

Kenneth P. Bailey **Director**

Teacher Education programs lead to California teaching credentials as established by the Teacher Preparation and Licensing Law of 1970, known generally as the Ryan Act. It is possible for a Graduate Division student concurrently to complete the requirements for a teaching credential and to earn an advanced academic degree. This requires admission to the Teacher Education program and the graduate program in which the degree will be sought.

Early in their college career students should consult with counselors in the Office of Teacher Education to work out a long range program that will lead to the teaching credentials. There are regular staff counselors on duty daily, and there is a peer counselor who is particularly prepared to advise undergraduates.

The new teacher preparation and licensing law provides for two types of credentials — a teaching credential and a services credential. For information on the services credential, consult the Office of Teacher Education.

Teaching Credential

The teaching credential consists of four basic kinds:

1. "Single subject instruction" means the practice of assignment of teachers to specified subject matter courses, as is commonly practiced in California high schools and junior high schools. Teachers who are authorized for single subject instruction may be assigned, with their consent, to teach any subject in the authorized fields, at any grade level: preschool; kindergarten; and grades one-twelve inclusive. UCI is approved for this credential.

Single Subject Instruction Credentials are authorized by the

State of California in: art, business, English/drama, English, history, homemaking, industrial arts, languages, mathematics, music, physical education, social science, biological science, and physical science.

2. "Multiple subject instruction" means the practice of assignment of teachers to multiple subject matter instruction, as is commonly practiced in California elementary schools. Teachers who are authorized for multiple subject instruction may be assigned, with their consent, to teach in any self-contained classroom: preschool; kindergarten; and grades one-twelve inclusive. UCI is approved for this credential.

3. "Specialist instruction" means any specialty requiring advanced preparation or special competence including reading specialist, specialist in special education, or early childhood education. These are credentials on top of a credential. UCI is approved for Specialist Instruction Credentials in bilingual education, early childhood education, counseling, and administration.

4. "Designated subjects" means the practice of assignment of teachers to designated technical, trade, or vocational courses. UCI is not approved in this credential area.

The new credentials authorized by the 1970 law are not determined by grade level (i.e., elementary and secondary) but by the type of instructional situation (multiple or single subject). Each of the new credentials carries K-12 authorization. These credentials are awarded by the Commission for Teacher Preparation and Licensing upon recommendation of the UCI Office of Teacher Education and are required in order to teach or serve in a professional capacity in any public school in California.

The minimum requirements for the teaching credential are:

1. A baccalaureate or higher degree, in an area other than professional education, from an approved institution.
2. An approved program of professional preparation. This means a sequence of education courses, including an all-day (full-time) assignment of a semester's duration in student teaching.
3. Passage of a subject matter examination or its waiver via an approved academic preparation. UCI academic programs are approved for most examination waivers.
4. Demonstration of a knowledge of the various methods of teaching reading as validated by successful completion of a program of study.
5. A fifth year of study is still required, even though a student may elect to start or complete the approved program of professional preparation as an undergraduate.

Completion of the approved program as an undergraduate at UCI with a grade point average of 3.0 will support admission to the Graduate Division (in UCI Teacher Education) for completion of the fifth year requirement. The UCI Teacher Education program defines the fifth year as 45 quarter units of upper-division or graduate-level work taken after the Bachelor's degree is granted. In each instance the fifth year will consist of a controlled program individually determined, based upon the assessed needs of the student as determined by the student, the Office of Teacher Education, and where applicable, the hiring school district.

Passage of a Subject Matter Examination

Single subject examinations. Except as waivers are approved, subject matter examinations authorizing single subject instruction are required for all subjects taught in California public schools. Subject matter examinations are required for additional authorizations.

Multiple subject examinations. A general subject matter examination authorizing teaching multiple subjects includes an examination of the candidate's knowledge of the following areas: English, social science, fine arts, science, and mathematics. The UCI program for the Multiple Subject Teaching Credential is approved for waiver of the examination.

Teaching Minors. The Licensing Law of 1970 does not refer to minors. Students desiring to be credentialed in more than one subject area are strongly advised to take sufficient

course work to enable them to demonstrate competency in that subject area.

Multiple and Single Subject Credentials

Multiple and Single Subject Credentials are of three types:

1. *The Preliminary Credential* is awarded by the state upon completion of the approved program. This can be done in the undergraduate program and is contingent upon possession of the baccalaureate degree.
2. *The Clear Credential* cannot be awarded by the state until the completion of (a) baccalaureate degree, (b) approved program, and (c) a fifth year.
3. *The Life Credential* cannot be awarded by the state until the completion of all requirements for the Clear Credential plus a certain number of years teaching in California public schools. The length of service required as well as other issues concerning the life credential are currently being negotiated.

Prerequisite and Concurrent Courses

The following work must be completed prior to or concurrent with the approved professional education program:

1. For both Single and Multiple Subject Credentials:
 - a. A course dealing with the U.S. Constitution (or an examination over the Constitution).
 - b. Participation in two experiences in contact with students in the public school (e.g., tutor, teacher aide, or some similar experiences). Teacher Education offers course credit for these experiences but so do many departments at UCI (Social Sciences, Social Ecology, Comparative Culture, Biological Sciences, Mathematics, etc.).
 - c. Education 360: Synthesis of the Professional Commitment.
 - d. Education 380: Health Education for Teachers.
2. For the Multiple Subject Credential:
 - a. All of the above.
 - b. Three approved mathematics courses (or passing a test covering the material).

The Approved Program of Professional Preparation

This program refers to education courses required for the state teaching credential. UCI defines the approved program

as consisting of 19 quarter units, plus student teaching. Six quarter units of this instruction shall be devoted to the teaching of reading.

The professional preparation will contribute effectively to the experience, performance, and excellence of the candidates. The understandings and competencies in each of the required courses are attained through the provision of a wide variety of experiences, designed to be most effective in providing the competency.

Multiple Subject Instruction Credential Program (Elementary)

Education 105A; Education 105LA; Education 110A-B; Education 173; Education 174.

Single Subject Instruction Credential Program

Education 101; Education 102 – the students enroll in the section of their major; Education 105B; Education 105LB; Education 173; Education 174. These patterns will prevail for all candidates. The primary option will be the status of the candidate (undergraduate or graduate) at entry. The programs are planned for inclusion in the undergraduate degree program, but can all be completed in the fifth year.

Field experience, including student teaching, is offered in the regular four-year undergraduate program. UC Irvine is committed to the concept that the student should have a broad range of experiences in the schools and community as a part of any kind of college education. This is true not only in the area of Teacher Education but is a concept shared by most other academic units on the campus. Thus, the field experience is relatively easy to achieve for the student preparing to be a teacher. It should be started in the freshman or sophomore year.

The Irvine Teacher Education Program requires *two field experiences* prior to entering into student teaching. One such program might be becoming a tutor during the freshman or sophomore year and a teacher's aide in the junior year. There are numerous options for this field experience.

Each field experience program is a cooperative arrangement between the University and the public school districts to help provide UCI students with experience that will prepare them for their future work as teachers. The field experience can come from any one of several academic areas in which students work in public schools under supervision of an experienced teacher in the school and with a University supervisor. As a tutor, the college student will usually work with

the public school student on a one-to-one basis. As a teacher's aide, the student will work for a block of time per week for a quarter with a teacher in the classroom. During this time students will be given a variety of opportunities to help the experienced teacher enrich their course of study and to participate within the classroom. Ultimately it is in the classroom where the problems of teaching are either solved or ignored; hence here is where teacher preparation begins. This experience will assist the UCI student in making a more realistic vocational choice. It will also involve the public school in the selection of future student teachers.

Early in the junior year, when it is not too late for the UCI student to change a vocational choice without undue hardship, the University and the student should be in a position to make certain decisions as to whether to continue in the educational sequence.

An additional field experience of one unit value will be required of all students in Education 174, and this involvement must be in multicultural areas.

Provision for a Student Teaching Experience

Multiple Subject Instruction candidates will be assigned in grades K-8. The assignment will be split to include two levels within this range.

Single Subject Instruction candidates will be assigned either to a junior or senior high school, or, if possible, to both.

The student teaching situation requires the student to be in the school the full day the same as the regular teacher, including faculty meetings, parent conferences, and sponsorship of events for a full semester's duration.

It is a joint responsibility of UCI and the school districts to guarantee that each student will have student teaching experience in a multicultural or cross-cultural situation.

There is no concurrent course work required of student teachers in addition to the student teaching. A weekly seminar is held as a part of the total student teaching program.

Basic Information

1. Requirements for the candidate's admission to the program of teacher preparation is based on a broad index:

- a. Academic achievement: A 3.0 overall GPA is required for admission. Education on this campus prior to the Ryan Act has been a fifth year program only. The new

law requires that the student teaching program be open to undergraduate students. The new program has been worked out with that in mind. But a fifth year program is still a part of the Ryan Act, and admission to the Graduate Division for the fifth year program requires a 3.0 overall average and completion of a bachelor's degree at the University of California or another institution of high standing.

b. Absence of a criminal conviction that would preclude the issuance of a credential: At the time of admission to the program, a statement is issued concerning criminal conviction and obtaining a teaching credential. The document is clear and concise. There is a difference between being charged and being convicted. A fingerprint checking system is required by the state.

c. Interview: An interview committee has been set up that will meet with all prospective students. All admitted to the program will have gone through a personal interview with a member or members of the committee. Since a student can enter the program at any quarter, these committees act monthly.

d. Written recommendations: Three letters of recommendation for admission are required. These recommendations are concerned with the student's ability to do graduate-level work and are not necessarily character references. These are the same kinds of letters that are required for entrance for any other campus graduate program.

e. Joint admissions: All Single Subject Instruction Credential admissions are joint admissions. The student's academic record is first reviewed by the department whose major is involved. Based upon the recommendation of that department, the Admissions Committee meets and acts.

f. Prior experience with children and youth groups: Prior to acceptance of a student into student teaching, the student will be required to have had two quarters of experience elsewhere.

2. The approved program should be completed in its entirety at UCI. Education courses taken at UCI prior to fall, 1974, are *not acceptable* in the new program. Students who have previously completed such courses should consult a credential counselor. Any deviation should be cleared with a counselor.

3. For the Multiple Subject Instruction Credential, Education 105A, 105LA, 110A-B, 173, and 174 must be finished prior to student teaching.

4. For the Single Subject Instruction Credential, Education 101, 102, 105B, 105LB, 173, and 174 must be finished prior to student teaching.

5. Twenty quarter units of student teaching is defined as a full day, five days per week, for 18 weeks in the appropriate classroom training environment. Evaluation will be based on performance, outcomes, excellence in instruction, and professional maturity. These factors will be assessed through a rigorous evaluation by the resident teacher and the supervising teacher.

If competence cannot be reached by the conclusion of the student teaching program, the student will have failed to qualify for recommendation for credential certification by UCI.

6. Candidates desiring both Single and Multiple Subject Credentials may apply the basic professional courses of Education 105A and 105LA, 173-174, and 380 toward both credentials, but must complete Education 101, 102, 110A-B, do student teaching in both areas, and demonstrate competence by passing appropriate state-mandated subject field examinations where needed.

7. Student Teaching Clearances: A student must apply for a student teaching assignment the quarter before student teaching. Students are to consult the Office of Teacher Education for appropriate information.

Clearances will be processed by the Office of Teacher Education and are contingent upon:

- a. Current health clearance
- b. Academic clearance

8. Under the new program a student can be authorized to teach in California prior to the completion of the fifth year. A student can be granted a preliminary credential upon completion of the B.A., the professional education sequence, a course in the teaching of reading, and student teaching, as required by the Ryan Act.

9. The "fifth year" must be completed within five years after the preliminary credential is issued.

10. Commission-administered examinations for subject

matter credential approval are in the process of development. See the Office of Teacher Education for details.

The examination for the Multiple Subject Credential is the General Education Section of the Common Examinations of the National Teacher Examination. The examination can be taken as often as necessary but should not be taken prior to the junior year. The General Education Section of the Common Examinations will cover the areas of Written Composition/English; Social Science/Fine Arts; and Mathematics/Science. The lowest acceptable score in any one of the fields is 60-60-62, respectively.

Multiple Subject Instruction Credential Requirements in Academic Areas for Waiver of Examination

1. Of the student's total undergraduate program, 128 quarter hours are required to be divided as follows:

Nine courses (36 quarter units) in two of the following areas and seven courses (28 quarter units) in the other two:

- a. English (including grammar, literature, composition, and speech).
- b. Social science and history (must have courses in each).
- c. Mathematics and science (must have courses in each with a minimum of three in mathematics).
- d. Fine arts, foreign language, and philosophy.

2. Since on the UCI campus the academic major will normally fulfill one of the four areas above and the UCI breadth requirement applies to the others, meeting the four requirements is not particularly difficult.

Single Subject Instruction Credential

This credential requires no special distribution of courses. It consists of the regular university major plus the professional preparation program.

Specialist Teaching Credentials

1. The Bilingual/Cross-Cultural Specialist Credential is a specialization in addition to a regular credential either at the elementary or the secondary level. This means that a candidate must fulfill all the necessary requirements for a regular State teaching credential whether this be with a single subject orientation for high school or a multiple subject orientation for elementary school. The bilingual specialists will then be those credentialed persons who can teach their subject matter in another language as well as in English. The Irvine program is limited to the development

of a bilingual capacity in Spanish only as the second language.

At UCI the Department of Spanish and Portuguese offers a B.A. with a Bilingualism and ESL emphasis. By acquiring this undergraduate major, the student will complete a significant part of the specific requirements for a Bilingual/Cross-Cultural Specialist. This is the best kind of preparation for going into the program leading to a Bilingual/Cross-Cultural Specialist Credential.

2. The Early Childhood Education Specialist Credential is a specialization on top of a regular Multiple Subject Instruction Credential. If the student can complete all the work, the student can obtain a preliminary teaching credential and an Early Childhood Specialist Credential with the B.A., but it is not likely. In nearly every instance it will be obtained as a result of the fifth year program. A B.A. is required in an academic area.

3. The Pupil Personnel Services Credential is an approved program at UCI. This credential is effective for grades K-12.

4. The Administrative Services Credential requires a Master's degree in some area, plus eleven specific courses in Education.

EDUCATION OF TEACHERS FACULTY

Kenneth P. Bailey, Ph.D. University of California, Los Angeles, *Director of Teacher Education and Senior Lecturer in History and Education*

Jack R. McCullough, Ph.D. U.S. International University, *Assistant Director of Teacher Education and Lecturer in Education*

T. Jean Adenika, Ph.D. Florida State University, *Supervisor of Teacher Education (Secondary)*

Howard A. Appel, M.A. University of Washington, *Supervisor of Teacher Education (Foreign Languages) and Lecturer in French*

Carolyn L. Bouldin, M.A. Pepperdine University, *Supervisor of Teacher Education (Intern Teachers)*

John L. Brown, M.D. Manila Central University, Philippines, *Lecturer (Special Education)*

Richard A. Denholm, Ed.D. Western Reserve University, *Supervisor of Teacher Education (Mathematics)*

John A. Dunn, M.A. California State College at Los Angeles, *Supervisor of Teacher Education (Art, Dance, Drama)*

Fred R. Holland, M.A. University of California, Los Angeles, *Supervisor of Teacher Education (Elementary)*

- Frances Craig Kenney, M.S. University of Southern California, *Supervisor of Teacher Education (Intern Teachers)*
- Robert E. Letro, M.A. California State College at Long Beach, *Supervisor of Teacher Education (History and Social Science; Media)*
- Janet C. Loxley, Ph.D. Southern Illinois University, *Supervisor of Teacher Education*
- Billie N. Masters, M.A. San Jose State College, *Supervisor of Teacher Education (Secondary Reading)*
- Lowell M. McGinnis, Ed.D. University of California, Los Angeles, *Supervisor of Teacher Education*
- Rachael C. Mitchell, M.S. Pepperdine University, *Supervisor of Teacher Education (Reading Specialist)*
- Robert L. Newcomb, Ph.D. University of California, Santa Barbara, *Lecturer in Education and Social Sciences*
- Mary W. Roosevelt, National Froebel Foundation Teaching Degree (University of London), *Supervisor of Teacher Education*
- Myron Simon, Ed.D. University of Michigan, *Professor of Education and English*
- Elaine H. Stowe, Ed.D. Arizona State University, *Supervisor of Teacher Education (Elementary)*
- Owen Thomas, Ph.D. University of California, Los Angeles, *Professor of Education and Linguistics*
- Eleanor P. Wynne, M.A. University of Washington, *Supervisor of Teacher Education (Early Childhood Education)*
- Ada L. Nix, *Credential Counselor*

COURSES

- 100A Educational Strategies for Tutoring (4)**
A laboratory on-the-job training course in a one-to-one situation in tutoring. Includes the developing of cognitive learning with the bilingual and bicultural child, including regular instruction in teaching strategies.
- 100B Field Work with Bilingual Children (4)**
Includes the study of black and brown social values, ethnic characteristics, instructional procedures, and practice in the teaching of the bilingual child as part of a tutorial program. The children worked with are all bilingual/bicultural.
- 100C Cross-Age Helping Techniques (4)**
Designed to develop instructional strategies and resources which can be used in cross-age and cross-cultural tutoring.
- 101 Secondary School Curriculum and Organization (4)**
The course relates both to the historical and current practices in curriculum concepts and procedures. Special attention will be directed to curriculum procedures and developments in the student's major and minor.
- 102 Methods of Teaching in the Secondary School (4)**
All sections of 102 are normally completed in the fifth year. A laboratory course covering scope and sequence in the instructional program in general and in the student's major. Observing and participating in the secondary classroom are required. This course includes extensive study in educational media: films, filmstrips, overhead presentations, television, the computer, and other educational technology. This course is to be taken in the graduate year immediately prior to supervised teaching or concurrently with it.
- 102A Methods of Teaching Foreign Languages in the Secondary Schools (4)**
Prerequisites: senior standing as a foreign language major and some training in linguistics, or consent.
- 102B Methods of Teaching History and the Social Sciences in the Secondary Schools (4)**
Presents a critical examination of methods and teaching strategies used in developing instructional programs in social science, including "The New Social Science Framework for California."
- 102C Methods of Teaching English in the Secondary Schools (4)**
This methods course is no longer offered in Education but appears as English 398. Required for the English Single Subject Credential.
- 102D Methods of Teaching Music in the Secondary Schools (4)**
Includes the basic concepts of music education and available materials. Develops teaching strategies both for performance-oriented curriculum and humanities approaches.
- 102E Methods of Teaching Art in the Secondary Schools (4)**
Theory and understanding of teaching strategies in the high school arts and crafts programs. Works on developing skills appropriate to the high school student. Includes art in the humanities program.
- 102F Methods of Teaching Mathematics in the Secondary Schools (4)**
Theories and understanding of teaching strategies in high school mathematics programs. Particular emphasis is placed upon new mathematics.
- 102G Methods of Teaching Science (4)**
Theories and understanding of teaching strategies in high school physical and biological science programs. Particular emphasis is placed upon the inquiry approaches to science.
- 102H Methods of Teaching the Bilingual Child (4)**
Individual development of potentialities of the bilingual child. Appropriate teaching strategies; examination of resources and materials, particularly from content areas, applicable to the teaching of the bilingual child.
- 103A-B-C Foundation of Mathematics (4-4-4)**
Lecture, three hours. This course meets the certification requirements for the elementary teaching credential in the State of California. See Mathematics 4A-B-C for description of courses.

104A-B Elementary School Curriculum, Organization, and Methods (4-4)

A laboratory course covering scope and sequence in elementary education, current curriculum and methods in the mandated areas, multi-media materials and techniques, classroom organization, management, control, and evaluation. Two hours per week is required in elementary school observation. 104A covers language, literature, and social science methods. 104B includes detailed laboratory study of methods of teaching arithmetic and science.

104C Curriculum and Methods in the Elementary School: Foreign Language (4)

The audio-lingual method of teaching foreign languages at the elementary level. Examination and development of materials; evaluation; articulation with secondary schools.

104D Curriculum and Methods in Elementary School Music (4)**104E Curriculum and Methods in Elementary School Art Education (4)****104H Methods of Teaching English as a Second Language (4)**

This course provides insight into the understanding of the building blocks of English and Spanish and how to fit the blocks together, including psychological phenomena brought into play when the second language is encountered.

105A Curriculum and Methods in the Elementary School: Reading (4)

Principles and methods of developing instructional programs in reading; participation in schools. This course includes the study of phonics, as well as the various methods of teaching reading.

105LA Curriculum and Methods in Reading Laboratory, Elementary (2)

This course is the laboratory program in the public schools to be taken concurrently with Education 105A. It involves working in reading laboratories and in classroom situations in putting into immediate practice the processes learned in Education 105A.

105B Reading in the Secondary Schools (4)

A study of various reading programs. This course includes four hours per week in laboratory assignment.

105LB Curriculum and Methods in Reading Laboratory, Secondary (2)

This course is the laboratory program in the public schools to be taken concurrently with Education 105B. It will involve working in reading laboratories and in classroom situations in putting into immediate practice the processes learned in Education 105B.

106A Education of the Preschool Child (4)

Theoretical and practical analysis of the educational system of the preschool child. A study of the young child and the family within the community. Curriculum development, teaching strategies, review of principal concepts and research concerning processes of learning; critical, productive, and creative thinking.

106B Administration and Supervision of ECE Programs (4)

Designing and directing Early Childhood Education programs.

Comparative methods and techniques of management within differing ECE programs. Proposals, curriculum development, organizational planning, policies and procedures, budget planning, plant and facility, parents and the community, legal responsibilities, and professional growth.

106C Curriculum and Methods in Elementary Education: Early Childhood Education (4)

Components of Early Childhood Education: diagnostic, prescriptive teaching, competency-based learning, continuous flow curriculum, continuous progress, inquiry teaching, parent and aide implementation, individualization assessment and evaluation, multicultural planning, and comprehensive programming.

106D Methods of Fine Arts in Early Childhood Education (4)

The course will be team taught including creative movement, music, and art, with a special emphasis toward Early Childhood Education.

106E Child Development I: Infancy and Early Childhood (4)

A study of the development of the child in infancy and early childhood. Analysis and interpretation of research, theory, current controversies, trends, and techniques for study of the child and the family unit within the community setting.

106F Child Development II: Middle and Late Childhood; Pre-adolescent Development (4)

Behavior and development in middle and late childhood with emphasis on the family and community setting. Theory, current research, and techniques for effectively working with this age group.

106G Child Development III: Adolescence and Early Childhood (4)

Discussion of theoretical and empirical analysis of selected topics in the individual and social behavior of the adolescent and early adult. Research, current studies, and theories applicable.

106H-I-J Practicum in Early Childhood Education (4-4-4)

Supervised school laboratory experience in schools serving young children. Includes directed teaching in child development laboratories, nursery schools, day care schools, and similar approved facilities.

107 Children's Literature (4)

The history of all types of children's literature, major authors, and illustrators. Includes methods for promoting children's interest in literature and the effect of differential sociocultural backgrounds upon children's motivation.

110A-B Strategies for the Development of Communication and Thinking Skills for the Elementary Child (4-4)

110A Focus on models of teaching of inquiry (social science), spelling, creative writing, language arts, music, art, and drama. **110B** Includes methods and demonstrations in the teaching of science, mathematics, health, and physical education. Included in each part will be an emphasis on entry skills for the beginning teacher. The student will be able to demonstrate operational success in five teaching areas: Communication; Pre-Active (planning); Individualizing-Evaluation; Management Tactics (including crisis control); Self-Evaluation.

- 111 Art and Crafts for Teachers (4)**
 Planning, developing, and evaluating objectives and procedures for teaching the visual arts in the elementary and secondary schools; includes experiences with crafts and other art projects appropriate for child development, with emphasis on two- and three-dimensional products that can improve classroom curriculum.
- 112A Approaches to Teaching Drawing in the Secondary Schools: A Workshop (4)**
 Emphasis will be on drawing techniques, drawing tools and materials, interrelationships of subject matter, techniques, and content; includes teaching strategies.
- 112B Nontraditional Approaches to Art in the Secondary Schools: A Workshop (4)**
 A secondary school art workshop concerned with developing plans for nontraditional art experiences for high school students, implementing those plans in a high school, and evaluating the outcomes.
- 112C Approaches to Teaching Design in Secondary Schools: A Workshop (4)**
 Emphasizes design elements, principles, and their relationships to tools, materials, and techniques. Includes teaching strategies.
- 115A-B Reading in the Curriculum: Advanced (4-4)**
 This course is a tutorial and laboratory-oriented program aimed to prepare teachers for the Miller-Unruh Reading Specialist examinations and for advanced work for other students.
- 140A Bilingual/Cross-Cultural – Multiple Subject (4)**
 Methods and materials for elementary bilingual classrooms; selection and use of children's literature, games, songs and folklore; cross-cultural techniques in subject matter presentation; field experience required. Taught bilingually. (Same as Spanish 100A).
- 140B Bilingual/Cross-Cultural – Single Subject (4)**
 Concerns oral and written interferences between Spanish and English; practice in various methods of presentation, e.g., the cognitive, audio-lingual, and traditional approaches. Field experience required. Taught bilingually. (Same as Spanish 100B.)
- 140C ESL for Teachers of Spanish-Speakers (4)**
 Methods and materials for the teaching of English to speakers of Spanish. Contrastive analysis – Spanish interference in English pronunciation and grammar. Techniques for teaching English to different age groups from varied backgrounds; field experience required. (Same as Spanish 100C.)
- 157 Survey of Physical Defects (4)**
 Survey of physically pathological conditions in pupils and their educational implications. Includes assessment of physical, intellectual, social, and emotional characteristics of both exceptional and nonexceptional pupils; assessment of learning disabilities in relation to genetic, physiological, psychological, social, and cultural conditions.
- 158 Educational Implications and Methods for the Physically Handicapped (4)**
 Educational methods and materials to meet the needs of pupils with limitations resulting from physical handicaps. Includes development of competency in assessment of physical, intellectual, social, and emotional characteristics of both exceptional and nonexceptional pupils; utilization of systematic observation, academic assessment, clinical teaching, and specialized formal assessment procedures for individualized instruction.
- 159 Communication Sciences with the Physically Handicapped (4)**
 Emphasis on language acquisition and development for the physically handicapped, fundamentals of braille, signing, communication boards, etc.
- 160 Learning Disabilities: Medical and Biological Dimensions (4)**
 Analysis of major research regarding the exceptional child, including commonalities and differences: physical and psychiatric aspects of mental retardation; instructional modifications based on the factors.
- 161 Learning Disabilities in the Schools (4)**
 Definition and nature of learning disabilities, means of recognition, diagnosis, and remediation of learning disabilities as manifested in intermediate and high school students.
- 162 Psychology and Education of the Exceptional Child (4)**
 Nature, degree, and incidence of conditions which differentiate children deviating from normal physical, neurological, mental, and psychological patterns. Emphasis is given to state laws in relation to identification and education of exceptional children. Development and effective use of individualized processes and strategies.
- 163 Classroom Management of Exceptional Children (4)**
 Organization of classes for exceptional children including resources and mainstreaming. Dynamics of pupil-teacher, teacher-parent, and pupil-pupil relationships are given emphasis. Assessment of the characteristics and behavior of exceptional pupils in terms of progress and developmental needs. Utilization of ethical practices in communication to others about individual pupils.
- 164 Diagnosis and Prescription for the Learning Handicapped (4)**
 Diagnosis of learning problems and remedial procedures including individualized prescriptive learning activities. Includes analysis and evaluation of all program elements including instructional media. Identification of current issues and trends and the utilization of research findings in program implementation. Application of appropriate intervention to extend interaction between the pupil, peers, and adults.
- 165 Educational and Vocational Implications of Retardation (4)**
 Educational, social, economic, and vocational implications of mental retardation and physical handicaps; current programs, services, and legal aspects; counseling exceptional pupils and their parents.
- 166 Educational Implications of Behavior Disorders (4)**
 Identification and techniques of remediation with behavior dis-

orders of pupils. Emphasis is given to individual and classroom strategies including behavior modification. Assessment of motivational and attitudinal differences including but not limited to self-control, anxiety, general attitudes toward learning, and the acceptance of success.

167 Education of the Trainable Mentally Retarded and the Severely Multiple Handicapped (4)

Application of developmental and learning characteristics of the trainable mentally retarded and the multiple handicapped to educational curriculum, total communication skills, planning, and materials. Description and evaluation of the several theoretical instructional systems used to design programs for handicapped pupils.

168 Severely Emotionally Disturbed and Autistic Pupils in the Schools (4)

Programming for the severely emotionally disturbed and autistic pupils including diagnosing individual needs, prescribing learning activities, preparing and organizing materials, and evaluating outcomes. Utilization of systematic observation, academic assessment, clinical teaching, and specialized formal procedures for individualized instruction.

170 History of Education (4)

Course covers the development of educational experiences in this country with special reference to educational issues and problems.

171 Psychological Foundations of Education (4)

Covers the learning process, application of psychological principles to the problem of learning and development including that of the minority child. Major topics covered are social interaction, theories of instruction, educational measurement and evaluation, and personality development.

172 Sociological Foundations of Education (4)

Influence of social structure in schools, school systems; American cultural values and their influence on education; particular emphasis is placed on problems of ethnically and culturally different students in schools.

173 Learning Theory and Classroom Practices (4)

Combines educational theory with practice. The pertinent content of the course will include: learning theories, enhancing self-image; personal self-realization (motivation), alternate management systems for learning environments, teaching behaviors teachers can utilize in conjunction with a variety of management systems (diagnosis, prescription, instruction treatment, evaluation, interpersonal relations, motivational skills), educational media support systems, and a study of student failures.

174 Learning Theory and Classroom Practices Laboratory (1)

This laboratory course is to be concurrent with Education 173. The laboratory experience takes place in a public school or community setting of a bicultural nature.

180 Special Topics: Curriculum and Methods (4)

This is an advanced course in curriculum and assumes that the

student has already completed some phase of curriculum work, either elementary or secondary. It is tutorial in nature.

181 Advanced Curriculum Design and Management in Public Schools (4)

This is an advanced course in curriculum. It will study the basis for making public school curriculum decisions; theories, principles, and backgrounds for operational techniques for public school curriculum planning; strategies and development of educational programs in general.

183 Elementary Curriculum, K-8 (4)

Emphasis on what is being taught in all areas and at all levels in the elementary school, how it all fits together, and what we expect children to know. The state framework, texts, and other materials will be studied and critiqued. A study of the basis for making public school curriculum decisions, theories, principles, and background for operational techniques for public school curriculum planning, notions, and development of educational programs in general, liberal, and professional education.

184A Direct Field Experiences (4)

This course is required for admission to the Teacher Intern Program. Specialization, particularly in public schools, working with children of varied ethnic and racial backgrounds, noting education as a bridge between cultures. Includes study of objectives, trends, content, process, instructional materials, demographic background, discipline, classroom management, and alternate approaches.

184B Direct Field Experience with Exceptional Children (4)

Included in this course will be observation and participation plus laboratory activities in on-site school situations, encompassing a variety of experiences with varied types of exceptional students and students with differing racial and ethnic backgrounds; a study of objectives, trends, content, process, instructional materials, demographic background, discipline, classroom management, and alternate approaches.

185 Individualized Instruction (4)

This course will structure student initiated learning activities, focusing upon essential ingredients for individualized instruction: mechanics of classroom structuring for individualizing self-instructional immediate feedback materials, including use of the computer; major problems in attempting to individualize.

189 Counseling Theory and Procedure: Organization and Services (4)

This course includes a study of the function of counseling; the role of the counselor; the operation of pupil personnel services; testing and measurement and the use of test data; parent conferences and career counseling.

191 Experimentation in Media of Communication and Instruction (4)

Involves future teachers with media resources, techniques, and new teaching strategies in their respective fields. "Media" includes printed materials, audio and visual materials, programmed

materials, educational technology, and organized systems of learning.

192 Secondary and Elementary School Administration: Legal and Financial Aspects (4)

This course covers laws regarding children, school procedures, teacher rights and responsibilities, curriculum, and finance. The financial aspect includes budgeting, purchasing, and the many other functions associated with business management. (This course is offered in cooperation with the Graduate School of Administration.)

193 Governance of Public Schools (4)

This course explores the political, social, and economic forces affecting public school systems. The course includes federal policies and funding, state mandates, court decisions, and other influences. It also studies structure, organization, and administration of the various programs and systems. Prerequisite: admission to Administrative Services Credential Program.

194 Organization and Administration of Public Education Systems: Elementary and Secondary (4)

School management covering the organization and administration of elementary and secondary schools. Emphasis is upon administrative-supervisory aspects of curriculum design and planning.

195 Techniques of Personnel Administration (4)

Advanced personnel administration in public education; theories, policies, and practices relative to educational personnel, including current research. Exploration in depth of school professional negotiations, recruitment, selection, assignment, inservice training, and classified personnel programs.

196 School Management in Community Settings (4)

This course includes an introduction to school management; problem-solving strategies and decision making; alternate approaches to assessing needs; management support systems; multiple plans for effective communications; program evaluations and performance appraisal.

197 Individually Arranged Field Study (4)

A planned field study program wherein the student has sufficient background to undertake the field study. The area of study has to be within the competence of the sponsoring faculty member.

198 Directed Course Study on Special Topics (4)

This course consists essentially of a program of laboratory experiences in the public schools set up and conducted for persons who are in advanced levels of teacher preparation.

199 Individual Study (4)

Intensified advanced study in areas in which a student has considerable background under the direction of a faculty member who has competence in the area.

300A-B-C-D-E-F Supervised Teaching in the Elementary School: Multiple Subject Instruction Credential (4-4-4-4-4)

This is a full-time student teaching assignment for a semester's

duration. Graded "IP." Prerequisite: Professional Program in Education.

301 Secondary School Curriculum and Organization (4)

The course relates both to the historical and current practices in curriculum concepts and procedures. Special attention will be directed to curriculum procedures and developments in the student's major and minor.

310A-B-C-D-E-F Intern Teaching in the Elementary School: Multiple Subject Instruction Credential (4-4-4-4-4)

Must be a contract intern with a school district and be enrolled in graduate status at the University. Graded "IP." Prerequisite: Professional Program in Education.

320A-B-C-D-E-F Supervised Teaching in the Secondary School: Single Subject Instruction Credential (4-4-4-4-4)

This is a full-time student teaching assignment for a semester's duration. Graded "IP." Prerequisite: Professional Program in Education.

330A-B-C-D-E-F Intern Teaching in the Secondary School: Single Subject Instruction Credential (4-4-4-4-4)

Must be a contract teacher with a school district and be enrolled in graduate status at the University. Graded "IP." Prerequisite: Professional Program in Education.

331A-B-C T.A. Supervised Teaching (2-2-2)

This course provides student teaching credit applicable to both junior college and secondary schools. It involves seminars, workshops, and general orientation meetings for Teaching Assistants and will include a strong component of videotaping and analysis of the student teaching performance. The seminar sessions will concentrate on helping the Teaching Assistants to clarify their goals and objectives as teachers, introduce them to specific methods and techniques, and familiarize them with and instruct them in the use of resources available on campus which can help them in their assignments. Corequisite: student must be a Teaching Assistant in some UCI School, Department, or Program.

340A-B-C Intern Administrative Field Work (4-4-4)

The student in this program must be a contract administrator in a public school and be enrolled in graduate status at the University.

341A-B-C Supervised Counseling Experience (4-4-4)

The development of the ability to apply counseling techniques, both individual and group, through supervised field experience under observation will be the focus. Weekly individual and group supervision will be supplemented with lectures on counseling from a developmental framework and its application to different age groups. The practice assignment will include a culturally, ethnically, and economically diversified area. Prerequisites: core counseling courses (Social Ecology and Education) and consent of the instructor.

342A-B-C Supervised Field Experience (4-4-4)

This is a full-time student teaching assignment for the duration

of one quarter in an appropriate special education setting. Includes development and effective use of individualized behavioral, instructional objectives, of appropriate instructional processes and strategies, designing and utilizing pupil performance criteria to evaluate pupil learning and behavior.

350 Supervision of Classroom Teaching (4)

A combination of lecture-laboratory based course addressing the role of the supervisor in the advancement of teacher skills in the guidance of the classroom learning process; develops skills in supervision. Prerequisite: admission to Administrative Services Credential Program.

360 Synthesis of the Professional Commitment (4)

This course brings together the responsibilities, rights, processes, professional ethics, and commitments of the teaching profession. Included are Stull Bill requirements, professional associations, legal rights and responsibilities, humanistic opportunities in teaching attitudes, and advocacy in the classroom.

370A-B-C Supervised Teaching in Bilingual Education, Elementary (4-4-4)

This is a full-time student teaching assignment for a quarter's duration (or equivalent). Prerequisites: Education 300A-B-C; graduate students only.

370D-E-F Supervised Teaching in Bilingual Education, Secondary (4-4-4)

This is a full-time student teaching assignment for a quarter's duration (or equivalent). Prerequisites: Education 320A-B-C; graduate students only.

380 Health Education for Teachers (4)

This course covers all state requirements for teachers in terms of health education, including drug use and misuse.

391 Interpersonal Dynamics for Leadership in Public Education (4)

The behavioral requirements for success as a leader in managing, developing, and evaluating educational programs; the role of the leader in group contexts. Prerequisite: admission to Administrative Services Credential Program.

392 Accountability and Finance in Public Education (4)

A course of investigation into the sources of revenue available to public education and the expenditure programs in current use; legal requirements; reforms in financing; includes budgeting, purchasing, and many other functions associated with business management. Prerequisite: admission to Administrative Services Credential Program.

393 Research Design and Analysis in Public Education (4)

An examination of the basic methodologies, processes, and techniques applicable to the research and study of public education. Analysis of current applications and research. Prerequisite: admission to Administrative Services Credential Program.

397A-B-C Supervised and Administrative Field Work (4-4-4)

This course is taught as a part of a field experience in administration or supervision in the public school. The school district, the student, and UCI jointly plan the work experience, its supervision, and accompanying academic work. Prerequisite: two years of teaching experience.

398 Career Development (4)

The goal is knowledge and understanding of occupational and career education trends, information, and theories. Theories will be compared on their different approaches to the definition of the client's problem, techniques, and desired outcomes. Measurement instruments and computer-based approaches will be considered. Sponsored by Teacher Education and Social Ecology.

School of Engineering

J.H. Mulligan, Jr. Dean

The School of Engineering offers undergraduate and graduate programs of study for men and women who will engage in the professional practice of engineering primarily as it relates to design, development, research, and teaching, in industry, government, or a university. Programs at all levels emphasize the fundamentals underlying engineering so as to enable the graduates to continue professional development through formal or informal study. Thus, programs of study in the School of Engineering endeavor to provide UCI graduates with adequate intellectual tools for entrance into the profession and for continued renewal of their technical knowledge.

At the undergraduate level a single program in Engineering is offered with options in Civil, Electrical, and Mechanical Engineering. In addition, an undergraduate double option of Environmental Engineering in conjunction with either the Civil Engineering or the Mechanical Engineering option is available. The Engineering program is designed to maximize the freedom of choice, while at the same time it is sufficiently structured so as to provide a sound base in engineering. In general, students will devote approximately 40% of their time over the four years to the scientific and mathematical background pertaining to the various engineering fields; the purpose of this intense study of the sciences and mathematics is to make sure that graduates are well grounded in the laws and constraints of logic and nature. Another 20% of the program will be assigned to the study of the fine arts, humanities, and the social sciences. The remaining 40% will comprise engineering subjects.

At the graduate level, programs of study become less structured and specialization becomes more intense. The M.S.

program requires 36 units to be completed, but the exact choice of the courses will be formulated through consultation between the student and the faculty advisor. Thesis and nonthesis programs are available. At the Ph.D. level the program is still less structured but more specialized than at the M.S. level. There is no set course requirement; rather, students must demonstrate various competences as they progress toward the completion of their doctoral programs.

Engineering student organizations are the Dean's Cabinet, the Engineering Society of UCI (ESUCI), and student groups associated with the American Institute of Aeronautics and Astronautics (AIAA), the American Society of Civil Engineers (ASCE), the American Society of Mechanical Engineers (ASME), the Institute of Electrical and Electronic Engineers (IEEE), the Mexican American Engineering Society, and the Society of Women Engineers (SWE). All Engineering students are eligible to be members of the Dean's Cabinet. Composed of students representing all academic levels from freshman through graduate, the Cabinet provides a direct communication link between the students and the Dean. The Cabinet in turn appoints a Committee on Committees which selects students to participate on the committees of the School of Engineering. Whereas the Dean's Cabinet pertains mainly to academic matters, the other organizations are professional in nature having ties locally and nationally with the engineering profession and are open for the participation of all students.

All faculty and committee meetings (except those involving personnel considerations) are open meetings; in addition to designated student representatives, all students are encouraged and expected to participate in the development of School policy. Student evaluation of the quality of instruction is made annually.

Degrees

Engineering B.S., M.S., Ph.D.

Honors

Undergraduate honors at graduation in the School of Engineering are awarded on the basis of a minimum upper-division grade point average of 3.5 for work completed at UCI and service to the School, service to the University, service to the community, or achievement in research projects.

Approximately 1% of the graduating class shall be awarded *summa cum laude*, 3% *magna cum laude*, and 8% *cum laude* with no more than 12% being awarded honors.

UNDERGRADUATE PROGRAM

The undergraduate program leads to a B.S. degree with an option in Civil Engineering, Electrical Engineering, or Mechanical Engineering. A double option of Environmental Engineering in conjunction with either the Civil Engineering or Mechanical Engineering option may be obtained by satisfying the appropriate double option requirements. The program is designed to provide a firm background in the basic sciences, through the required courses in physics, mathematics, biology, and chemistry, a fundamental understanding of the engineering sciences, through the required engineering core courses, and specialization via technical electives.

Admissions

High school students wishing to begin their engineering programs at UCI should seek admission to the Irvine campus of the University of California designating Engineering as their intended major.

Transfer students are admitted to the School of Engineering upon completion of a lower-division program in another school at Irvine or at another college, including community colleges. Students seeking admission to the School of Engineering from colleges and schools other than UCI must satisfy the University requirements for admission to advanced standing and must have completed appropriate prerequisites for the junior level courses to be undertaken in the School of Engineering.

Students satisfying the Community College-State College-University pact of 1965 on lower-division requirements may complete the requirements for the B.S. degree in six quarters assuming normal progress.

Advising

Upon registration a student will be assigned an engineering advisor who will assist in developing a program of study.

The program of study for each engineering student must be approved by the appropriate faculty advisor.

Requirements for the Bachelor's Degree

University Requirements: See page 20. Note, however, that the breadth requirement does not apply to the School of Engineering.

School Requirements

Credit for 180 quarter units including the following:

Engineering Core: Forty units — Engineering 10, 100A-B-C, 101A-B, 101C or D, 105, and 106A-B.

Upper-Division Engineering Requirements: Twenty-eight upper-division engineering units *which must be approved by the appropriate faculty advisor for each individual student.*

Technical Electives: Sixteen units (eight must be upper-division). Technical electives are defined as courses in engineering, mathematics, physics, or chemistry acceptable toward those majors; and upper-division courses in computer science and biological science.

Mathematics: Twenty-four units — Mathematics 2A-B-C and 3A-B-C.

Basic Sciences: Twenty-four units (no less than six courses, with laboratory where appropriate) from Physics 5A-B-C-D-E, Chemistry 1, 2, 3, and Biological Sciences 101E.

Breadth: Thirty-six units — lower- and upper-division. Twenty-four units from one of the Schools of Humanities, Social Sciences, or Fine Arts, and 12 units from another of these Schools. (Civil Engineering students may take the twelve units in the School of Biological Sciences.)

Free Electives: Any 12 units with the exception of physical education.

Variations from these requirements may be made subject to the approval of the faculty of the school. Students wishing to abrogate these requirements should submit a petition to the School of Engineering, Student Affairs Office.

In addition to the University residence requirement, at least 24 upper-division engineering units must be successfully completed at UCI.

Sample Programs

Lower-Division — All Options

Fall	Winter	Spring
FRESHMAN		
Engr. 50	Engr. 10	Engr. 30
Math 2A	Math 2B	Math 2C
Science	Science ^a	Science
History 9 ^b	Writing 39 ^b	History 6 ^b

SOPHOMORE

Engr. 100A	Engr. 100B	Engr. 100C
Math 3A	Math 3B	Math 3C
Science	Science	Science
Breadth	Breadth	Breadth

Upper-Division Options

Civil Engineering

JUNIOR

Engr. 101A	Engr. 101B	Engr. 101C
Engr. 150A	Engr. 150B	Tech. Elective ^c
Engr. 105	Engr. 163	Engr. 151
	Breadth	Breadth

SENIOR

Engr. 157	Engr. 106A	Engr. 106B
Engr. 152	Engr. 154	Tech. Elective ^c
Free Elective ^c	Free Elective ^c	Free Elective ^c
Breadth		

^aStudents in Civil Engineering option will normally take two basic science courses in the winter quarter of the freshman year.

^bStrongly recommended as part of Breadth Requirement.

^cEngineering courses 161I (Environmental Impact Assessment and Reporting), 164 (Fundamentals of Air Pollution and Control), and 166 (Public Health Aspects of Environmental Quality) are strongly recommended for all Civil Engineering students. Engineering 153 (Civil and Environmental Design) and 150C (Structural Mechanics) are strongly recommended for students with a particular interest in design.

^dElective sequences recommended for students having a particular interest in Thermodynamics, Energy, Combustion — Engineering 160, 164, 170, 174; Controls — Engineering 140B; Environmental — Engineering 157, 160, 164.

Upper-Division Options Continued

Fall	Winter	Spring
Electrical Engineering		

JUNIOR

Engr. 101A	Engr. 101B	Engr. 101D
Engr. 116	Engr. 102	Engr. 121
Engr. 105	Engr. 110A	Engr. 110B
	Breadth	Breadth

SENIOR

Engr. 140A	Engr. 106A	Engr. 106B
Engr. 186	Free Elective	Free Elective
Tech. Elective	Tech. Elective	Free Elective
Breadth		

Mechanical Engineering

JUNIOR

Engr. 101A	Engr. 101B	Engr. 101C
Engr. 150A	Engr. 150B	Engr. 147
Engr. 105	Engr. 173	Engr. 171
	Breadth	Breadth

SENIOR

Engr. 149	Engr. 106A	Engr. 106B
Engr. 140A	Engr. 169	Free Elective ^d
Tech. Elective ^d	Tech. Elective ^d	Free Elective ^d
Breadth		

Programs of Study

Students are free to follow any schedule of courses in the program they feel is meaningful to them, but they should complete the graduation requirements of the School of Engineering at the end of their allotted collegiate period. Students in the School of Engineering, in accordance with the general campus policy, are permitted to take courses in areas outside their major, or outside their school, on a Pass/Not Pass basis. With respect to programs in engineering, such areas are fine arts, humanities, and social sciences, any course not being submitted as fulfilling the graduation requirements, and any course used as a free elective.

Programs of study in the School of Engineering, within the scope of the graduation requirements, are individually designed to meet the educational objectives of the student. Students will work out suitable programs of study with their faculty advisors. Students must realize that they alone are responsible for the planning of their own programs and

for satisfactory completion of the graduation requirements. However, the faculty stand ready to give every assistance and necessary advice in the planning of programs. Students may substitute courses of their choosing for those required if they can substantiate the merits of the program of study and obtain the approval of the faculty of the School.

Proficiency Examinations

Students who consider themselves sufficiently proficient in the subject matter underlying a specific course in the School of Engineering to receive credit without formal enrollment in that course may consult with the instructor of that course to explore what must be done to demonstrate proficiency and gain credit. Normally, ability will be demonstrated by a written or oral examination; if a portion of the capability involves laboratory exercises, the student may be required to perform experiments as well as to take a written examination. Normally, these examinations (written, oral, or laboratory) will be given at the opening of each quarter in which the specified course is offered. All courses in the School are available for such proficiency demonstrations.

Double Options in Civil and Environmental Engineering or Mechanical and Environmental Engineering

A significant feature of these double options is the provision for the broad interdisciplinary education necessary to deal with contemporary environmental engineering problems. The student may obtain the Environmental Engineering option from one of two possible paths — from either the Civil Engineering or Mechanical Engineering option — by satisfying additional course work from the Environmental Engineering core. By suitable choice of the courses taken as electives in either the Civil or Mechanical Engineering option, a student may complete most of the requirements for the second option in Environmental Engineering as part of the process of meeting the basic requirements for the B.S. degree in Engineering. Specifically, the double option requirement can be satisfied by either of the following:

Civil Engineering and Environmental Engineering

In addition to the requirements in the Civil Engineering option, the student must successfully complete 24 units from the following Engineering group: **Engineering 160** (Energy: Resources and Utilization); **161E** (Environmental Economics); **161I** (Environmental Impact Assessment and

Reporting); **164** (Fundamentals of Air Pollution and Control); **166** (Public Health Aspects of Environmental Quality); **168** (Sociopolitical Aspects of Environmental Quality); **169** (Vibration and Noise Control); **171** (Heat and Mass Transfer); **173** (Applied Engineering Thermodynamics).

Mechanical Engineering and Environmental Engineering

In addition to the requirements in the Mechanical Engineering option, the student must successfully complete 24 units from the following Engineering group: **Engineering 152** (Water Supply and Hydraulic Systems); **157** (Transportation and Traffic Engineering); **160** (Energy: Resources and Utilization); **161E** (Environmental Economics); **161I** (Environmental Impact Assessment and Reporting); **163** (Water Resources and Water Quality); **164** (Fundamentals of Air Pollution and Control); **166** (Public Health Aspects of Environmental Quality); **168** (Sociopolitical Aspects of Environmental Quality).

The 3-2 Program with the Graduate School of Administration

Outstanding UCI undergraduate engineering students may enter a cooperative 3-2 program with the Graduate School of Administration. Students in this program will complete their first three years in the School of Engineering and the final two years jointly in the School of Engineering and the Graduate School of Administration. Successful completion of the requirements in this program leads to a B.S. degree in Engineering and a Master's degree in Administration. Students wishing to enter the 3-2 program should consult with both the School of Engineering and the Graduate School of Administration prior to, or early in, the junior year.

Undergraduate Acceleration Toward the M.S. Degree in Engineering

Exceptionally promising seniors may, with permission of the Undergraduate Study Committee, take graduate level Engineering courses above and beyond the undergraduate degree requirements. After attaining the B.S. degree and upon acceptance to the M.S. program in Engineering, the student may, upon petition to the School, apply these courses toward the M.S. degree requirements. Students who take advantage of this regulation can expect to receive the M.S. degree in one year after completion of the B.S. degree while working half time as a Teaching Assistant or Research Assistant.

GRADUATE PROGRAM

Graduate study toward the M.S. and Ph.D. degrees in Engineering will provide an excellent base for future professional growth through understanding of the basic concepts and phenomena associated with the student's chosen field.

The graduate program concentrates upon electrical engineering and environmental engineering, with opportunities for study and research in the related areas of civil and mechanical engineering. Courses and current research activities focus on power systems, optimization theory, pattern recognition, optical and quantum electronics, semi-conductor devices, air and water resources, water and waste treatment, noise, vibrations, public health, transportation, combustion, heat and mass transfer, structures, advanced dynamics, control systems, operations research, analytical mechanics, and finite element methods.

Admissions

Admission to graduate standing in the School of Engineering is generally accorded those possessing a B.S. degree in engineering or an allied field obtained with an acceptable level of scholarship from an institution of recognized standing. Those seeking admission without the requisite scholarship record may, in some cases, undertake remedial work; if completed at the stipulated academic level, they will be admitted to full graduate standing. Those admitted from an allied field may be required to take supplementary upper-division courses in basic engineering subjects.

The Graduate Record Examination Aptitude Test is required of all applicants.

Master of Science in Engineering

The M.S. degree is normally attained by one of two routes: Plan I, a thesis, or Plan II, a comprehensive examination. For the M.S. degree with thesis, a minimum of 36 approved units are required, of which at least 20 must be nonresearch graduate units (courses numbered 200-289). A maximum of eight M.S. thesis research units (296) may be submitted. The M.S. thesis must demonstrate the student's capability of undertaking an original study and carrying it through to a conclusion satisfactory to at least three members of the faculty. For the M.S. degree with comprehensive examination, a minimum of 36 approved units are required, of which at least 24 must be nonresearch graduate units (numbered 200-289). The detailed program of study for each M.S. student is formulated in consultation with an advisor who takes into consideration the objectives and preparation

of the candidate and the specific requirements of the School. The program of study must be approved by the faculty of the School.

Part-Time Study

Those students who are employed may pursue the M.S. degree on a part-time basis. If employed full time, they will normally be limited to four units per quarter. Those employed part time, including Research and Teaching Assistants, will generally be limited to less than the 12 unit full-time load. Upon petition a limited number of courses taken in University Extension, on another campus of the University, or in another accredited university may be credited toward the M.S. degree upon admission. See page 30. The student is reminded that University residence requirements necessitate the taking of a minimum of one course in graduate or upper-division work in each of at least three regular University quarters. Full student fees are required of graduate students in residence regardless of the number of courses taken. M.S. programs must be completed in four calendar years from the date of admission.

Doctor of Philosophy in Engineering

The doctoral program in engineering leading to the Ph.D. is tailored to the individual needs and background of the student. There are no specific course requirements, but there are several milestones to be passed: admission to the Ph.D. program by the Faculty of the School; passage of the preliminary examination assessing the student's background and potential for success in the doctoral program; satisfaction of the teaching requirements required of all doctoral students; research preparation; formal advancement to candidacy; and completion of a significant research investigation. The degree is granted upon the recommendation of the Doctoral Committee and the Dean of the Graduate Division. For at least the final two years of the doctoral program it is expected that the student will be a full-time resident in the School. Doctoral programs must be completed in seven calendar years from the date of admission.

Some financial aids such as research and teaching assistantships are available so that each doctoral student, after passing the preliminary examination, will have a staff appointment in the School of Engineering for at least one year.

SCHOOL OF ENGINEERING FACULTY

James H. Mulligan, Jr., Ph.D. Columbia University, *Professor of Electrical Engineering and Dean of the School of Engineering*

Allen R. Stubberud, Ph.D. University of California, Los Angeles, *Professor of Electrical Engineering and Associate Dean of the School of Engineering*

James E. Amrhein, M.S. Columbia University, *Lecturer in Civil Engineering*

Paul D. Arthur, Ph.D. California Institute of Technology, *Professor of Mechanical Engineering*

Casper W. Barnes, Jr., Ph.D. Stanford University, *Professor of Electrical Engineering*

Neil J. Bershad, Ph.D. Rensselaer Polytechnic Institute, *Professor of Electrical Engineering*

Remescha Bharat, Ph.D. Stanford University, *Lecturer in Electrical Engineering*

Alan V. Cameron, Ph.D. Monash University, *Lecturer in Engineering*

Ralph B. Conn, M.S. University of Southern California, *Lecturer in Electrical Engineering*

Hideya Gamo, D.Sc. University of Tokyo, *Professor of Electrical Engineering*

Gary L. Guymon, Ph.D. University of California, Davis, *Associate Professor of Civil and Environmental Engineering*

Neil M. Harrington, M.S. University of California, Los Angeles, *Lecturer in Civil Engineering*

Albert S. Jackson, Ph.D. Cornell University, *Lecturer in Electrical Engineering*

Robert C.K. Lee, Sc.D. Massachusetts Institute of Technology, *Associate Professor of Mechanical Engineering*

James S. Meditch, Ph.D. Purdue University, *Professor of Electrical Engineering*

Lester Mintzer, M.S. Ohio State University, *Lecturer in Electrical Engineering*

R. Henry Mohle, M.S. University of California, Berkeley, *Lecturer in Civil Engineering*

Lawrence J. Muzio, Ph.D. University of California, Berkeley, *Lecturer in Mechanical Engineering*

Gerard C. Pardoan, Ph.D. Stanford University, *Assistant Professor of Civil Engineering*

John G. Rau, M.A. University of Washington, *Lecturer in Electrical Engineering*

William T. Rhoades, M.S. Massachusetts Institute of Technology, *Lecturer in Electrical Engineering*

G. Scott Samuelson, Ph.D. University of California, Berkeley, *Associate Professor of Mechanical and Environmental Engineering*

Robert M. Saunders, Dr. Eng. Tokyo Institute of Technology, *Professor of Electrical Engineering*

Jan Scherfig, Ph.D. University of California, Berkeley, *Professor of Civil and Environmental Engineering*

Roland Schinzingler, Ph.D. University of California, Berkeley, *Associate Professor of Electrical Engineering*

Stanley E. Scholl, M.S. University of Illinois, *Lecturer in Civil Engineering*

Anthony U. Simpson, Ph.D. University of Colorado, *Lecturer in Civil and Environmental Engineering*

Jack Sklansky, D.Sc. Columbia University, *Professor of Electrical Engineering and Information and Computer Science*

Thomas D. Taylor, Ph.D. University of California, Berkeley, *Lecturer in Civil and Environmental Engineering*

John E. Williamson, B.E., Ch.E. University of Southern California, *Lecturer in Environmental Engineering*

David C. Wooten, Ph.D. California Institute of Technology, *Lecturer in Mechanical and Environmental Engineering*

Rainer Zuleeg, Dr. Eng. Tohoku University, *Lecturer in Electrical Engineering*

UNDERGRADUATE COURSES

10 Computational Methods in Engineering (4) W

Lecture, three hours; discussion, one hour. A proper perspective on numbers; precision (and cost of precision) in data, computing, and design and manufacturing. Analysis of engineering problems and formulation of methods of solution. Practice in the use of the digital computer and numerical methods throughout the course. Prerequisite: Mathematics 2A concurrently, or consent of instructor.

30 Vector Mechanics (4) S

Lecture, three hours. Principles of vector mechanics: forces, equilibrium, structures, distributed forces, friction, virtual work, and moments of inertia. Prerequisites: Engineering 10, Mathematics 2A.

50 Engineering Design and Economy (4) F

Lecture, three hours; discussion, one hour. An introduction to the philosophy of engineering design and its interrelationship with economy, needs analysis, feasibility study, preliminary design, optimization, value analysis, interest and money-time relationships.

100A Engineering System Analysis (4) F

Lecture, three hours; discussion, one hour. Introduction to analytical methods for the study of engineering systems. Modeling and mathematical representation of engineering systems, system response characteristics. Laplace transform techniques, frequency domain methods. Prerequisites: Engineering 10 or Information and Computer Science 1 (may be taken concurrently), Physics 5A, Mathematics 2C.

100B Network Analysis (4) W

Lecture, three hours; discussion, one hour. Modeling and analysis of electrical networks. Frequency and transient response of circuits. Prerequisites: Physics 5C, Engineering 100A.

100C Engineering Mechanics (4) S

Lecture, three hours; discussion, one hour. Rigid body dynamics, momentum and energy principles; modeling and analysis of mechanical systems. Prerequisite: Engineering 100A.

101A Introduction to Thermodynamics (4) F

Lecture, three hours; discussion, one hour. Development of thermodynamic principles and analyses of open and closed systems representative of engineering problems. Prerequisites: Physics 5B, Mathematics 2C.

101B Introduction To Fluid Mechanics (4) W

Lecture, three hours; discussion, one hour. Hydrostatics; control volume analysis; the basic flow equations of conservation of mass, momentum, and energy; dimensional analysis; effects of viscosity; mathematical analysis of ideal fluid flow. Prerequisites: Physics 5A, Mathematics 3B.

101C Fluid Mechanics (4) S

Lecture, three hours; laboratory, three hours. Fluid mechanics with emphasis on incompressible fluids. Fundamental equations and conservation relations, stresses in fluids, similitude, potential flows, turbulence, laminar and turbulent boundary layers, creeping motion, separation, wakes. Applications to pipe flow, open channel flow, and hydraulic models. Prerequisite: Engineering 101B.

101D Engineering Electromagnetics (4) S

Lecture, three hours; laboratory, two hours. Electromagnetic fields and solutions of electromagnetic field problems in engineering applications; dielectric constant and magnetic susceptibility, impedance, reflection and refraction of planewaves, transmission line and guided waves, resonance cavity and radiation. Prerequisites: Physics 5C, Mathematics 3C.

102 Signal Theory (4) W

Lecture, three hours; laboratory, two hours. Representation of signals — Fourier series, Fourier and Laplace transforms, orthogonal representations. Convolution integral, sampling theory, introductory communication theory, amplitude and phase modulation and demodulation, signal correlation. Corequisite: Engineering 100B. Prerequisite: Engineering 116.

105 Engineering Methods: Experiment and Analysis (4) F

Lecture, two hours; laboratory, three hours. Experimental methods including instrumentation, measurements, simulation, modeling, and data analysis. Prerequisites: Engineering 100A and 101A (may be taken concurrently).

106A-B Engineering Methods: Design (4-4) W, S

Lecture, two hours; laboratory, three hours. Design methods and design projects conducted with faculty in option area. Prerequisites: Engineering 100C, 101C or 101D, 105.

110A Electronics I (4) W

Lecture, three hours; laboratory, three hours. Review of circuit analysis. Large and small signal modeling of semiconductor diodes and transistors. Design of semiconductor digital circuits and multistage amplifiers. Comparison of discrete and integrated circuit designs. Prerequisite: Engineering 100B.

110B Electronics II (4) S

Lecture, three hours; laboratory, three hours. Modeling of junction and field effect transistor linear and digital circuits. Linear and nonlinear applications of operational amplifier feedback systems with emphasis placed on frequency and thermal stability constraints. Prerequisite: Engineering 110A.

111A Analysis and Design of Electrical Circuits (4) W

Lecture, four hours. Analysis and design of active and passive electrical circuits. Topology, network theorems, sensitivity considerations. Classical synthesis and computer-aided techniques for two, three, and four terminal networks. Corequisite: Engineering 102. Prerequisite: Engineering 100B.

111K Digital Signal Processing (4) W

Lecture, four hours. Nature of sampled data, sampling theorem, difference equations, data holds, z-transform, fast Fourier transform, w-transform, digital filters, Butterworth and Chebychev filters, quantization effects. Prerequisites: Engineering 102 and 116.

111L Digital Applications Laboratory (4) S

Laboratory, three hours. A series of experiments designed to familiarize the student with standard digital building blocks and how they may be assembled to realize a variety of digital processes. Experiments proceed from simple NAND gates through combinatorial MSI devices to counters and sequence generators. Prerequisite: Engineering 121.

114A Field-Effect Semiconductor Devices (4) W

Lecture, four hours; laboratory, three hours. Semiconductor devices: analog transistor, Schottky barrier and pn-junction capacitors, junction field-effect transistors, insulated gate and thin-film transistors, charge coupled devices and semiconducting memories. Prerequisite: Engineering 110B.

114B Bipolar Semiconductor Devices (4) S

Lecture, four hours; laboratory, three hours. Semiconductor devices based on minority carrier flow; pn-junction diodes, tunnel; backward and punch-through diodes; bipolar transistors (diffusion, drift); four-layer devices; opto-electronic devices. Prerequisite: Engineering 114A.

116 Electrical Engineering Analysis (4) F

Lecture, four hours. Analytical methods of complex numbers and their application to electrical engineering problems, Laplace, Fourier, z- and discrete Fourier transforms. Applications to lumped and continuous parameter engineering systems. Prerequisite: Mathematics 3C.

118A Mathematical Methods In Operations Research (4) F

Lecture, four hours. Linear programming: simplex algorithm, duality, optimization in networks. Prerequisite: Mathematics 3C.

118B Mathematical Methods In Operations Research (4) W

Lecture, four hours. Nonlinear programming: conditions for optimality, quadratic and convex programming, geometric programming, search methods. Prerequisite: Engineering 118A.

- 118C Mathematical Methods In Operations Research (4) S**
Lecture, four hours. Integer and dynamic programming: multi-stage decision models. Applications. Prerequisite: Engineering 118B.
- 119A-B Power System Engineering (4-4) W, S**
Lecture, four hours; laboratory, three hours. Rotating and stationary energy converters. Generation and transmission of electrical energy. Fault calculations, protection. Stability, reliability, and optimal load flow. Prerequisites: Engineering 100B, 101D.
- 121 Computer Engineering Foundations (4) S**
Lecture, four hours. Fundamental models for processing digital information; measure of information, mathematical logic; set theory; switching algebra, sequential machines; finite-state recognizers. Prerequisite: Mathematics 3C.
- 122 Computer Engineering: Logic and Systems (4) W**
Lecture, four hours. Basic building blocks and organization of digital computers; the arithmetic unit, the control unit, the memory unit, and the input/out unit. Prerequisite: Engineering 121.
- 128A Communications Systems (4) F**
Lecture, four hours; laboratory, two hours. A nonprobabilistic introduction to analog and digital communication systems. Analog modulation and demodulation techniques. Digital signaling techniques (PCM) using pulse-position, pulse-width, and pulse-rate schemes. Prerequisite: Engineering 102.
- 137 Engineering Electrodynamics (4) F**
Lecture, three hours; laboratory, two hours. Time varying electromagnetic fields including waveguides, resonant cavities, and radiating systems. Motion of charged particles in electromagnetic fields, radiation by moving charges. Scattering and dispersion. Prerequisite: Engineering 101D.
- 138 Optical Electronics (4) W**
Lecture, three hours; laboratory, two hours. Lasers and related optical devices and systems: spontaneous and stimulated emission, optical spectra, optical resonators, laser oscillation, specific laser systems, dispersion and nonlinear processes in laser medium, crystal optics, modulation, isolator, optical harmonic generation, optical detection, and related noise problems. Prerequisite: Engineering 137.
- 140A Introduction to Control Systems (4) F**
Lecture, four hours; laboratory, two hours. Feedback control systems. Modeling, stability, and system specifications. Root locus, Bode, Nichols, and state-space methods of analysis and design. Associated laboratory. Prerequisite: Engineering 102.
- 140B Sampled-Data and Digital Control Systems (4) S**
Lecture, four hours; laboratory, two hours. Analysis and design of sampled-data and digital control systems. Sampling process and theory of digital signals; z-transforms and modeling; stability; z-plane, frequency response and state-space techniques of digital control system synthesis. Associated laboratory. Prerequisite: Engineering 140A.
- 146 Orbital Mechanics (4) F**
Lecture, four hours. The concepts and techniques of celestial mechanics as applied to space vehicle orbits. Atmospheric entry. Prerequisite: Engineering 100C.
- 147 Advanced Engineering Mechanics (4) S**
Lecture, three hours. Mechanics of machinery, vibrations, rigid body dynamics, Lagrange equations. Prerequisite: Engineering 100C.
- 149 Mechanical Engineering Design (4) F**
Lecture, four hours. Review and practice in the design of mechanical engineering systems. Engineering practices, use of handbooks and manufacturer's data, approximations. Two design projects will be prepared and presented. Prerequisite: Engineering 101A-B.
- 150A Structural Mechanics (4) F**
Lecture, three hours; laboratory, three hours. Introduction to stress and strain. Analysis of internal force resultants (axial, shearing, bending, twisting forces) and their influence on structural design. Elongation of axial rods, twisting of shafts, bending of beams. Statical determinacy and indeterminacy. Prerequisite: Engineering 30.
- 150B Structural Mechanics (4) W**
Lecture, three hours; laboratory, three hours. Concepts and application of structural stability in design. Plates and shells as structural members. Analysis of indeterminate truss and framed structures using superposition and energy (least-work, Castigliano, dummy load, virtual work, etc.) principles. Prerequisite: Engineering 150A or consent of instructor.
- 150C Structural Mechanics (4) S**
Lecture, four hours. Matrix techniques for indeterminate framed structures; flexibility and stiffness methods. Computer techniques using the stiffness method. Structural dynamics of single, multi, and infinite d.o.f. systems. Computer techniques for frequencies and modes. Prerequisites: Engineering 150A-B or consent of instructor.
- 151 Soil Mechanics (4) S**
Lecture, three hours; laboratory, three hours. Mechanics of soils, composition and classification of soils, compaction, compressibility and consolidation shear strength, shear tests, seepage, bearing capacity, lateral earth pressure, footing design, retaining walls, piles. Prerequisites: Engineering 101B and 150A.
- 152 Water Supply and Hydraulic Systems (4) F**
Lecture, four hours. Engineering principles of hydrology, water supply, and hydraulic systems; analysis of groundwater, design of wells, flood hydrology, seepage, pumps and surface hydraulic structures. Prerequisite: Engineering 101C.
- 153 Civil Engineering Design (4) S**
Lecture, four hours. Fundamentals of reinforced concrete, steel, and timber design. Fundamentals of dead and live load factors. Design project which includes the site planning, footing, framing and roof design of a two story tilt-up wall building. Prerequisite: Engineering 150A.

- 154 Reinforced Concrete Design (4) W**
Lecture, three hours; discussion, three hours. Design of reinforced concrete members. Topics covered include: materials, design theory, strength in bending, shear strength, and web reinforcement, band stress and development, one-way slabs, tee sections, joist construction, deflections, columns, length effects, footings, and combined footings. Prerequisite: Engineering 150A.
- 157 Transportation and Traffic Engineering (4) F**
Lecture, four hours. Systems analysis of transportation modes; interaction between transportation systems and land use planning; design of street and highways including access facilities, controls; traffic flow theory. Corequisite: Engineering 100A.
- 160 Energy: Resources and Utilization (4) F**
Lecture, four hours. Investigation of the present and projected status of energy demands and production with special attention to energy sources and conversion. Prerequisite: Engineering 101A.
- 161E Environmental Economics (4) W**
Lecture, four hours. Socioeconomic aspects of environmental impact are examined. Population growth, density, aesthetics, standards of living, traffic congestion, recreational requirements, and conflict in life styles are considered. Cost/benefit analysis and requirements for public services are determined. Case studies are emphasized.
- 161I Environmental Impact Assessment and Reporting (4) F**
Lecture, four hours. Designed to aid in the development, preparation, and assessment of mandatory and proposed environmental impact reports. The course covers pertinent legislation and local requirements for environmental impact assessment, factors required in conducting environmental studies, examination of selected case studies, and the techniques and applicable methodologies for performing impact assessment.
- 163 Water Resources and Water Quality (4) W**
Lecture, three hours; laboratory, three hours. Chemical and biological aspects of water, water supply, wastewater treatment, and solid waste management. Prerequisites: Biological Sciences 101E, Chemistry 2, Engineering 101B.
- 163K Water and Wastewater Treatment Design (4) S**
Lecture, three hours; laboratory, three hours. The design of chemical and biological treatment processes, emphasis on process dynamics and reactor engineering. Application of mass transport and kinetics, coagulation and flocculation, absorption, ion exchange. Contractual law and contract document requirements are described. Prerequisite: Engineering 163.
- 164 Fundamentals of Combustion and Air Resources Engineering (4) F**
Lecture, three hours; laboratory, three hours. Introduction to combustion and the sources, dispersion, and effects of air pollutants. Control of air pollutant emissions by modification of the combustion process. Modeling impact on air quality. Source and ambient monitoring. Approaches to regional control of air quality. Prerequisites: Engineering 101A and 173.
- 166 Public Health Aspects of Environmental Quality (4) W**
Lecture, three hours; laboratory, three hours. Introduction to the principles of public health protection and design of environmental protection systems. The systems include water, air, noise, and industrial hygiene.
- 168 Sociopolitical Aspects of Environmental Quality (4) W**
Lecture, four hours. The course is an analysis of the political and social constraints which operate in the area of environmental quality.
- 169 Vibration and Noise Control (4) W**
Lecture, three hours; laboratory, three hours. Introduction to the fundamentals of mechanical vibrations and their application to sound generation and propagation. Source, measurement, effect, as well as the legal and economic aspects, of noise and vibration control. Prerequisite: Engineering 100C.
- 170 Statistical Thermodynamics (4) W**
Lecture, four hours. Classical and quantum mechanical descriptions of substances and evaluation of thermodynamic properties of gases, liquids, and solids. Elementary kinetic theory of gases and evaluation of transport coefficients. Prerequisite: Engineering 101A.
- 171 Heat and Mass Transfer (4) S**
Lecture, four hours. Fundamentals of heat and mass transfer with application to practical problems. Conduction, convection, and radiation heat transfer, mass transfer in laminar and turbulent flow, and combined heat and mass transfer. Application to insulation requirements, heat exchangers, and reacting flows. Prerequisites: Engineering 101A and 101B.
- 173 Applied Engineering Thermodynamics (4) W**
Lecture, three hours; laboratory, three hours. Application of the thermodynamic principles to compressible and incompressible processes representative of practical engineering problems – power cycles, refrigeration cycles, multicomponent mixtures, air conditioning systems, combustion, and compressible flow. Prerequisite: Engineering 101A.
- 174 Compressible Flow (4) S**
Lecture, four hours. Compressible effects in fluid mechanics. Isentropic inviscid flow. Channel, Fanno, and Rayleigh flows. Acoustics, shock waves, linearized supersonic flow, nozzles and diffusers. Prerequisite: Engineering 101B.
- 184 Introduction to Boundary-Value Problems (4) S**
Lecture, three hours; discussion, one hour. Potential, diffusion, and wave phenomena studied as boundary-value problems. Analytical and numerical methods of solving boundary-value problems. Fourier series. Numerical relaxation methods. Prerequisites: Physics 5C, Mathematics 3C, Engineering 10.
- 185A Numerical Methods in Engineering and Science I (4) F**
Lecture, four hours. Computer-aided numerical solution of problems occurring in practice with application in various engineering

disciplines. Use of the computer for solving the individual problems. Prerequisite: junior standing.

185B Numerical Methods in Engineering and Science II (4) W

Lecture, four hours. Practical computation methods and their use on high-speed computers. Practical methods for solution of problems involving data analysis, linear equations, ordinary and partial differential equations, and optimization are included.

186 Engineering Probability (4) F

Lecture, four hours. Sets and set operations; nature of probability, sample spaces, fields of events, probability measures; conditional probability, independence, random variables, distribution functions, density functions, conditional distributions and densities; moments, characteristic functions; random sequences, independent and Markov sequences. Prerequisite: Engineering 100A or Mathematics 3C (may be taken concurrently).

187 Random Processes and Systems Theory (4) S

Lecture, four hours. Application of the theory of random processes to the analysis of the response of linear systems, linear mean-square optimization, the orthogonality principle, and Wiener-Hopf theory. Prerequisite: Engineering 186.

198 Group Studies for Undergraduates (4-4-4) F, W, S

Group study of selected topics in engineering.

199 Individual Study (2 to 4 per quarter) F, W, S

For undergraduate engineering majors in supervised but independent reading or research of engineering topics of current interest.

GRADUATE COURSES

207A Advanced Semiconductor Devices (4) F

Lecture, four hours; laboratory, three hours. Microwave and sub-nanosecond GaAs junction and Schottky barrier field-effect transistor design and physical limitations. Operation of unipolar transistor in the hot electron range and its implication on device characteristics.

207B Advanced Semiconductor Devices (4) W

Lecture, four hours; laboratory, three hours. Extended theory of bipolar transistor operation, including high-level injection. Early and Kirk effects high-frequency limitations due to material parameters and design. Lateral bipolar transistor and integrated circuit implementations.

209 Electromagnetic Radiation and Guided Waves (4) F

Lecture, four hours; laboratory, three hours. Electromagnetic diffraction, microwave and optical waveguides and resonators, coupled mode theory, scattering of electromagnetic waves by dielectric and metallic spheres.

210 Imaging Optics (4) W

Lecture, four hours. Optical imaging instruments from geometrical and wave optic standpoints. Indirect optical imaging methods such as holography, interferometry, and intensity correlation interferometry.

211 Statistical Optics (4) S

Lecture, four hours. Temporal and spatial coherence of electro-

magnetic radiation. Statistics of photoelectrons generated by thermal radiation and laser beams. Wave propagation through fluctuating medium. Signal-to-noise ratio in photodetection.

212 Engineering Quantum Mechanics (4) F

Lecture, four hours. Basic quantum electronics for optical electronic devices. Offered 1978.

213 Quantum Electronics (4) W

Lecture, four hours. Semi-classical treatment of lasers and related optical electronic devices. Offered 1978.

214 Quantum Optics (4) S

Lecture, four hours. Quantum theory of electromagnetic fields and its application to laser and related optical devices. Noise, photoelectron counting statistics, and intensity correlation interferometry. Offered 1978.

217A Forecasting, Inventory Control, and Production Planning (4) F

Lecture, four hours. A study of the practical techniques for forecasting, inventory control, and production planning for both industrial and nonindustrial commodities; important for planning with fluctuating demands, costs, available supplies, and prices. Corequisite: Engineering 118A or Mathematics 171A. Prerequisite: Engineering 186. Offered 1978.

217B Applied Stochastic Processes and Queuing Theory (4) W

Lecture, four hours. Application of stochastic processes to the study of the characteristics of queuing and replacement models and their optimization. Fundamental concepts of Markov and renewal processes. Stochastic analysis of systems from the point of view of reliability, spares provisioning, and availability. Models of queuing phenomena in transportation, vehicle congestion, airport, traffic, data message processing, and communications. Prerequisite: probability theory. Offered 1979.

217C Special Topics in Operations Research (4) S

Lecture, four hours. Advanced topics in Operations Research, selected from such areas as reliability, games, inventory and production planning, decision theory. Case studies. Prerequisites: Engineering 118A-B or Mathematics 171A-B. Offered 1979.

218A Methods of Operations Research (4) F

Laboratory, four hours. Nature of operations research, problem formulation, and modeling. Problems in allocation, inventory, replacement, inspection, maintenance, reliability, queuing, routing in networks, search, and competition. Utility and decision theory concepts. Methods of solution, simulation, and testing. Prerequisites: Engineering 118A or Mathematics 171A, concurrent.

218B Engineering Economics (4) W

Lecture, four hours. Fundamental concepts of managerial and engineering economy. Alternative investment proposals. Utility theory in decision making. Tax structures and depreciation strategies. Investment decisions under conditions of inflation. Methods of simulation. Cost-benefit techniques with application to engineering systems and energy conservation. Case studies emphasized. Prerequisite: Engineering 50 or consent of instructor.

218C Techniques of Optimization Theory (4) S

Lecture, four hours. Advanced topics of optimization theory selected from such areas as duality, geometric programming, search procedures, decomposition. Prerequisites: Engineering 118A-B or Mathematics 171A-B.

219 Electric Power System Dynamics (4) F

Lecture, four hours. Modeling and numerical solution of power system state equations. Stability criteria and methods of control. Prerequisite: Engineering 119C or consent of instructor.

221A Digital Electronics I (4) F

Lecture, four hours. Band theory of solid-state electronics, semiconductor devices, fabrication technology, nonlinear circuit analysis, analog-digital and digital-analog converters, magnetic memories. Prerequisite: Engineering 110A.

221Q Software Engineering: Theory and Practice (4) S

Lecture, four hours. Software quality assurance ingredients and their interactions. Specification languages. Characteristics of software quality and methods of measurement. Software reliability models and program testing. Tools for software development and test. Proving program correctness methods and comparison. Documentation and case studies. Prerequisites: working knowledge of FORTRAN IV and Engineering 186.

222A-B Statistical Pattern Classification (4-4) W, S

Lecture, four hours. Design of machines to sort statistically generated observations into classes, such as speech, radio signals, and electrocardiograms. The techniques discussed include decision theory, divergence, feature selection, cluster analysis, and prototype decisions. Prerequisite: Engineering 186 or Mathematics 130A.

223 Computer Architecture and Microprogramming (4) S

Lecture, four hours. A broad overview of computer architecture including problems in hardware, firmware (microprogram), and software. Computer architecture for resource sharing, real-time applications, parallelism, microprogramming, and fault tolerance. A comparative study of various architectures based on cost/performance and the current technology. Prerequisite: Engineering 122.

224A Digital Image Processing (4) W

Lecture, four hours. Use of computer for analyzing pictures. Digitization schemes, chain codes, convexity detection, parallel-structured image analyzers, distance skeletons, edge detection heuristic search procedures, texture recognition, picture languages, array automata, web grammars. Prerequisite: Engineering 124B or consent of instructor.

227A-B Detection, Estimation, and Demodulation Theory (4-4)

F, W
Lecture, four hours. Application of statistical decision theory, state variables, random processes, and the Ito Calculus to deriving optimum receiver structures for signal detection, parameter estimation, and analog demodulation. Prerequisite: Engineering 187.

228A-B Communication and Information Theory (4-4) F, W

Lecture, four hours. Communication over noise channels via optimum receiver design, information theory concepts — entropy, mutual information, encoding of information. Shannon's coding theorems, channel capacity and implementation of some coded systems. Prerequisite: Engineering 187.

230 Digital Signal Processing (4) S

Lecture, four hours. Fundamental principles of digital signal processing and digital filter design. Recursive and nonrecursive realizations of one- and two-dimensional digital filters. General theory of discrete transforms and fast algorithms and their application to digital filter synthesis. Prerequisite: Engineering 111K.

240A Linear System Theory (4) F

Lecture, four hours. Theory of linear dynamic systems. Linear spaces, differential equations, system representation, and canonical forms. Controllability, observability and stability theory. State variable feedback, observers, and realization theory. Prerequisites: Engineering 140A or equivalent.

240B Optimization and Control (4) W

Lecture, four hours. Optimization theory and its applications to problems in control and sequential decision making. Linear and nonlinear programming, calculus of variations, maximum principle and dynamic programming. Prerequisite: Engineering 240A or equivalent.

240C Multivariable Control Systems (4) S

Lecture, four hours. Analysis and design of controllers for deterministic and stochastic systems with multiple inputs and/or outputs; problems of regulation, tracking disturbance rejection and terminal control; optimal linear state feedback; observers; optimal linear output feedback; continuous-time and discrete-time systems. Prerequisite: Engineering 240B.

241A System Identification (4) S

Lecture, three hours; discussion, one hour. The course covers the latest techniques in system identification. The materials covered encompass techniques in both frequency and time domain, linear and nonlinear dynamic processes, correlation, regression, stochastic approximation, etc. are among the topics covered. Prerequisite: Engineering 240A.

242 Topics in Systems and Control Theory (4) S

Lecture, four hours. Advanced topics in systems and control theory. Large-scale, multilevel, and hierarchical systems; algebraic and geometric system theory; adaptive systems; game and team-decision theory; system identification; numerical methods; stability theory. Prerequisite: consent of instructor.

247 Advanced Dynamics (4) F

Lecture, four hours. Kinematics and dynamics of three-dimensional complex motions. Lagrangian dynamics, Hamilton's principles. Dynamics of gyros and platforms. Satellite dynamics (spinning, gravity gradient, etc.). Prerequisite: Engineering 147 or equivalent.

248 Structural Dynamics (4) S

Lecture, four hours. Structural dynamics with applications to mechanical, civil, and acoustical systems. Topics covered include the free and forced vibration of single, multi, and infinite d.o.f. systems. Computer programs for time and frequency response analyses are supplied and discussed. Prerequisite: Engineering 100C.

250 Finite Element Methods in Structural Mechanics (4) W

Lecture, three hours; laboratory, three hours. Use of computer methods in structural mechanics. Topics include static (1-D, 2-D, and 3-D), plasticity, and stability. Each topic is developed from a unified approach by considering elasticity, constitutive relations, and energy methods. Finite element computer laboratory. Prerequisites: Engineering 150A-B-C or consent of instructor.

252 Fluid Flow in Porous Media (4) S

Lecture, four hours. Theory and application of dynamics of flow in porous media. Groundwater resources, evaluation, and management. Well design and analysis. Dispersion of pollutants. Mathematical models. Prerequisite: Engineering 101C or consent of instructor. Offered 1979.

253 Plates and Shells (4) S

Lecture, four hours. Introduction to plates and shells as structural members using classical differential equations and modern computer techniques. Topics covered include bending of circular and rectangular plates, shells of revolution, and cylindrical shells. Finite element computer laboratory included. Prerequisites: Engineering 150A-B or consent of instructor.

257 Advanced Transportation and Traffic Engineering (4) W

Lecture, four hours. Perspective in transit; technical innovations; political, economic, organizational, and regulatory impediments. Case study of an innovation and generalization to other technology. Computer simulation is part of case study. Prerequisite: Engineering 157 or consent of instructor.

258 Flow In Open Channels (4) S

Lecture, four hours. Mechanics of fluid motion in open channels, uniform and nonuniform flow, unsteady flow, flood routing, numerical methods, flow over movable beds, sediment and mass transport. Prerequisite: Engineering 101C or consent of instructor.

263 Water and Waste Treatment Technology (4) S

Lecture, three hours; laboratory, three hours. Water and waste pollution control. Physical, chemical, and biological treatment. Reuse of wastes and ultimate disposal of nonreusable wastes. Prerequisites: Engineering 163, 166.

264 Advanced Combustion and Air Resources Engineering (4) W

Lecture, three hours; laboratory, three hours. Formation and control of air pollutant emissions from combustion processes, including nitrogen oxides, sulfur oxides, and particulates. Review and analysis of fundamental and applied research with attention to trends in control technology and utilization of alternative fuels. Advanced air quality modeling methodology. Laboratory

project required. Prerequisites: Engineering 164 and 173 (may be taken concurrently).

264M Air Pollution Metrology and Dispersion (4) S

Lecture, four hours. Macro-scale, meso-scale, and micro-scale study of metrology as pertaining to air pollutant dispersion. Mechanisms responsible for dispersion. Dispersion modeling of point, line, and area sources. Conservative and nonconservative fields. Status of predictive methods. Prerequisites: Engineering 164, 264.

264Q Advanced Air Pollution Control Technology (4) S

Lecture, four hours. Pollutant control technology of gaseous and particulate emission, design, and application with consideration of scrubbing, separation, precipitation, adsorption, catalysis, filtration, and hooding. Prerequisite: Engineering 264.

266 Advanced Techniques In Environmental Health Management (4) F

Lecture, four hours. Detailed analysis of bureaucratic structure and operations at all levels related to public health. Examination of organizational structure and psychology, politics of the budgetary process, advocacy, PPBS, grantsmanship, and public health law with emphasis on mitigation of environmental health impact. Prerequisite: Engineering 166.

267 Design in Engineering (4) W

Lecture, three hours; laboratory, three hours. Course in engineering design in which master's level students undertake a project. Interaction with the professional community is encouraged. Interaction among student projects in environmental, mechanical, and civil engineering is maintained. Tools of design, project management, presentation, and reporting are developed.

268 Environmental Resources Systems – Planning and Evaluation (4) W

Lecture, three hours; laboratory, three hours. Planning civil engineering systems. Optimization of integrated water and transportation systems. Design criteria for public works. Economic evaluation of alternative systems. Prerequisites: Engineering 163 and 263.

269 Advanced Noise Pollution and Control (4) S

Lecture, three hours; laboratory, three hours. Noise sources, the technology of noise control, noise measurement in the environment, community and individual response to noise; noise as a factor in environmental impact. Current noise problems and noise abatement efforts. Prerequisite: Engineering 169.

270 Fundamentals of Combustion (4) S

Lecture, four hours. Reaction mechanisms and rates, chemical equilibria, flame temperature, and production of trace species. Ignition limits, diffusion flames and droplet burning premixed flames, experimental techniques, and combustion analysis. Prerequisite: Engineering 264. Offered 1979.

271 Advanced Numerical Techniques in Transport Phenomena (4) W

Lecture, three hours; discussion, three hours. Application of

finite element methods to linear and nonlinear steady and dynamic problems in momentum, heat, and mass transport. Problems in free surface water and porous media systems considered. Prerequisite: Engineering 281. Offered 1979.

272 Fundamentals of Turbulence (4) S

Lecture, four hours. Engineering problems of turbulence, experiments and their analysis, with applications to channel and developing flows, and reacting and nonreacting mixtures. Prerequisite: Engineering 171 (may be taken concurrently).

275 Advanced Fluid Mechanics (4) F

Lecture, four hours. Applications of advanced and current concepts in fluid mechanics. Analysis of boundary layer and recirculating flows with emphasis on mass and energy transport and numerical methods. Prerequisites: Engineering 101B, 101C, and 173.

281 Finite Element Method In Continuum Mechanics (4) F

Lecture, three hours; discussion, three hours. Application of finite elements to continuum mechanics problems. The course stresses the adaptation of finite element methods to the computer. Coded algorithms are provided. Variational principle and Galerkin based schemes are covered. Element design and matrix manipulations are considered. Prerequisites: graduate standing, FORTRAN IV programming experience.

282 Finite Difference Methods (4) W

Lecture, three hours; discussion, three hours. Theory and application of finite-difference methods to linear and nonlinear

steady and dynamic systems. Explicit and implicit techniques. Alternate implicit and mesh integration techniques. Prerequisites: graduate standing, Engineering 185A, FORTRAN IV programming experience.

285A-B Methods of Engineering Analysis (4-4) F, W

Lecture, three hours; discussion, one hour. Operators in linear vector spaces as a general tool for the analysis of engineering systems. The course will develop a unified mathematical approach applicable to problems in all fields of engineering. Prerequisites: Engineering 100C, 101C or 101D.

295 Seminars in Engineering (varies) F, W, S

Seminars scheduled each year by individual faculty in major field of interest. Prerequisite: consent of instructor.

296 Master of Science Thesis Research (varies) F, W, S

Individual research or investigation conducted in the pursuit of preparing and completing the thesis required for the Master of Science degree in Engineering. Prerequisite: consent of instructor.

297 Doctor of Philosophy Dissertation Research (varies) F, W, S

Individual research or investigation conducted in the pursuit of preparing and completing the dissertation required for the Doctor of Philosophy degree in Engineering. Prerequisite: consent of instructor.

299 Individual Research (varies) F, W, S

Individual research or investigation under the direction of an individual faculty member. Prerequisite: consent of instructor.



Graduate School of Administration

Lyman W. Porter Dean

The Graduate School of Administration (GSA) offers programs of advanced study leading to the M.S. or Ph.D. degree in Administration. Through these programs individuals may prepare for significant roles in business or industry, in education and in government, and in other types of organizations. Among others, these roles include corporate managers, program directors, federal executives, state and local officials, urban and regional planners, administrators for various levels of the educational system, organizational staff experts, political leaders, hospital administrators, managers of scientific or research enterprises, engineer-administrators, policy analysts, researchers, and faculty members.

Three basic assumptions underlie the School's philosophy of graduate education. First, there are significant phenomena and problems common to business-industrial, educational, and governmental organizations; second, a common set of disciplines, concepts, techniques, and technologies exist which are appropriate to a wide range of organizational or scholarly roles; third, many administrators in the future will work in more than one of the three arenas during their careers.

The M.S. program is intended to increase the likelihood that future leaders will be able to communicate effectively and more easily from one kind of organizational unit to another, thereby providing society with versatile managers and administrators. The Ph.D. program for the field of administration has academic and research objectives.

General Admission Requirements

Applicants for the Ph.D. program should complete all

phases of the application procedure by March 1. Applicants for the M.S. program should complete all phases of the application procedure by June 1. (GSA also admits applicants for the M.S. program in the winter and spring quarters; application procedures should be completed at least ten weeks prior to the beginning of the appropriate quarter.)

In addition to the general University of California rules governing admission to graduate study, the Graduate School of Administration normally requires the following:

1. The Graduate Management Admission Test.
2. Subject matter preparation that emphasizes a background in social science courses (psychology, sociology, economics, political science, etc.), *and* course work in quantitative areas, including mathematics at the level of introductory calculus, and probability and statistics.
3. For Ph.D. applicants, a previously prepared paper (research report, essay, case study) which may be indicative generally of the applicant's interests and capabilities.

Evaluation of the applicant's file for admission will consist of an integrated assessment of all materials (test scores, transcripts of previous academic work, statements on application forms, and letters of recommendation). There are no arbitrary cut-off points on any of the criteria for admission — rather, admission is on the basis of the total configuration of qualifications.

Requests for application materials should be addressed to the Graduate Division, University of California, Irvine; Irvine, California 92717.

Educational Objectives

Regardless of the content of particular courses, it is expected that all degree candidates will be exposed to and have the ability to use the following:

General Knowledge. The broad context of organizations and management: the late-twentieth century (significant trends, conditions, and problems); history of science, scientific inquiry, and the philosophy of science; economic, political, and social analysis.

Conceptual and Empirical Knowledge of Organizations. Basic concepts of management; the structure and functions of organizations, including comparative analysis and inter-organizational relations; levels and units of decision making; individual behavior and group norms; operating environments of organizations.

Specific Knowledge of Particular Arenas of Administration. In-depth study of specific institutional environments for administrative practice, such as governmental, business-industrial organizations, and other types of organizations.

Mathematics and Statistics. As tools of precise reasoning, as languages which will tend more and more to dominate professional and scholarly literature, and above all, as foundations for relevant quantitative methods.

Technical Bases of Management. Decision processes; operations research; systems and policy analysis; budgeting and accounting techniques; personnel policies; techniques for measuring and affecting attitudes and behavior; computer technology and information sciences; research design and strategies.

General Skills. Political skills, effective management of interpersonal relations, leadership strategies and tactics, and competence in oral, graphic, and written expression.

Professional Orientations. Identification of factors, values, and policies which might bear on successful, responsible, and intellectually honest performance of organizational roles. Recognition of the administrator's potential contributions to society and of ethical and moral problems which arise from social research and the management of human enterprises.

Undergraduate Course Offerings

The GSA faculty offers a limited number of courses for undergraduates each year, although there is no undergraduate degree program in administration available at UCI.

Examples of these courses include "Introduction to Administration" and "Introduction to Managerial Accounting." Students should refer to the listings under the Graduate School of Administration in the "Schedule of Classes," available each quarter from the Registrar's Office.

In establishing these undergraduate course offerings, the faculty anticipated three types of students drawn to courses in administration: (1) students who wish to learn about the administration of organizations as a way of gaining appreciation for a significant aspect of the culture, (2) students preparing for careers in other fields that require some knowledge of administration but not a high concentration in the field, and (3) students who expect to go on to graduate work in administration and who wish early guidance and undergraduate work appropriate to this career objective.

The 3-2 Program for Undergraduates

In addition to the two-year Master's program for students who have already received a bachelor's degree from this University or another institution, outstanding UCI undergraduate students may enter a cooperative 3-2 program with other campus units such as the School of Social Sciences, the School of Engineering, the School of Biological Sciences, the Program in Social Ecology, or the Department of Information and Computer Science. Students in such a program spend their first three years taking courses and meeting requirements for the bachelor's degree in an undergraduate major. During the senior year, students complete these requirements and begin work on an M.S. degree in Administration. The requirements for the M.S. degree are completed during a fifth year of study. Successful completion of requirements in this program leads to a bachelor's degree in the cooperating field after the fourth year and a Master's degree in Administration after the fifth year. Students contemplating entering such a 3-2 program should contact the Graduate School of Administration prior to, or early in, the start of the junior year, for the purpose of program consultation.

NOTE: With the exception of 3-2 students, no undergraduates will be enrolled in GSA *graduate-level* courses.

The Master of Science in Administration

The M.S. program in GSA requires a minimum of 23 quarter courses with a minimum overall grade point average of 3.0. The 23 quarter courses normally take two full academic years or their equivalent in part-time registration.

Students with substantial personal or professional commitments normally take two courses per quarter and are required to complete the M.S. degree in no more than four years. To accommodate the needs of part-time students, GSA offers a number of courses each quarter during late afternoon and evening hours.

The courses in the M.S. program are divided into two groups, each group designed to achieve specific educational objectives.

Core Courses

The first group consists of 13 core courses and has two fundamental aims: (1) to develop skills needed to select and use effectively the appropriate means, methods, and techniques for diagnosing and solving organizational problems; (2) to identify the significant concepts and phenomena associated with the study of complex organizations, and to bring to bear the relevant contributions of the core disciplines or interdisciplinary sources on the analysis of organizations and the administrative process.

The core will consist of the following 13 quarter courses: Quantitative Methods for Administration; Quantitative Methods for Administration (continued); Microeconomics for Administration; Macroeconomics for Administration; Accounting and Financial Control; Accounting and Financial Control (continued); Organization Theories and Models; Organization Theories and Models (continued); Interpersonal Dynamics; Human Resources Utilization and Labor Relations; Institutional Arena (Seminar in Educational Administration, or Business Administration, or Public Administration); Institutional Arena (continued); Workshop in Administrative Problem Solving.

NOTE: The Quantitative Methods courses should be taken at the earliest scheduled opportunity after admission to the GSA program.

Elective Courses

The remaining course work for the M.S. degree will consist of ten elective courses. The major emphasis in the elective courses will be on the development of specialized knowledge relevant to particular institutions (e.g., educational, business, government, or other types of organizations), and on achieving additional depth in a discipline or interdisciplinary area or specialized competence in the use of a particular set of technical tools and methods. These elective courses are selected by student in light of their educational and career goals and interests.

Specialization in Business Administration, Public Administration, or Educational Administration: GSA offers a variety of elective courses for those who wish to specialize in one particular organizational setting such as business, government, or education. In addition to the two required core courses called "Institutional Arena" (two seminars in Educational Administration or two seminars in Business Administration or two seminars in Public Administration), a number of elective courses are offered each quarter that emphasize these organizational settings. By a combination of these regularly offered electives, special topic seminars, individual study courses, and courses offered in other units on campus, the student may design a program with emphasis on any of the administrative arenas — business, government, or education.

Administrative Internship Program

To complement the academic curriculum of GSA, an Administrative Internship Program provides practical application and work experience to interested GSA Master's students. The program is intended primarily for students in the second year of their M.S. study. Student interns are employed in administrative positions by local cooperating organizations. Course credit is available for the participants of the Internship Program through the course, "Administrative Internship Seminar." GSA faculty and organizational representatives as well as student interns participate in this seminar which deals with specific topics and projects encountered by the interns in their positions.

The Doctor of Philosophy in Administration

Students who have completed the GSA M.S. program (or have obtained a Master's degree elsewhere in an area of administration) may be eligible for the GSA doctoral program. Requirements of the Ph.D. program include a broad knowledge of core disciplines as represented by the 13 core courses of the M.S. program. In addition, the Ph.D. student must qualify as a skilled researcher and must complete a significant exercise demonstrating these skills. Only full-time students are admitted to the doctoral program.

Although there is considerable variation in the length of time beyond a Master's degree needed to complete the Ph.D., a realistic range would be three to four years. The Ph.D. program is divided into three phases: preliminary, qualification, and dissertation.

The preliminary phase (which must be completed within five quarters) is designed to ensure that all Ph.D. students

have (1) a thorough knowledge of core materials; (2) knowledge of how to conduct research; and (3) a depth of knowledge in a basic discipline or tool relevant to administration (e.g., operations research, behavioral science models for administration).

In the qualification phase the student prepares for dissertation research in an area of specialization. This phase is completed when an oral qualifying examination is passed and the candidacy committee recommends advancement to candidacy for the Ph.D.

The dissertation phase involves a significant original research project which demonstrates the Ph.D. student's creativity and ability to launch and sustain a career of research. The dissertation attests to the scholarly objectives of any Ph.D. program.

There are no foreign language requirements in the GSA Ph.D. program.

GRADUATE SCHOOL OF ADMINISTRATION FACULTY

Lyman W. Porter, Ph.D. Yale University, *Dean of the Graduate School of Administration and Professor of Administration and Psychology*

George W. Brown, Ph.D. Princeton University, *Professor of Administration and Information and Computer Science*

Robert Dubin, Ph.D. University of Chicago, *Professor of Administration and Sociology*

Henry Fagin, M.S. Columbia University, *Professor of Administration*

William M. Fischbach, J.D. University of Michigan, *Lecturer in Administration*

Martha S. Hollis, D.B.A. Arizona State University, *Assistant Professor of Administration*

John C. Hoy, M.A. Wesleyan University, *Senior Lecturer in Administration and Vice Chancellor – University and Student Affairs*

Stepan Karamardian, Ph.D. University of California, Berkeley, *Professor of Administration and Mathematics*

Kenneth L. Kraemer, Ph.D. University of Southern California, *Associate Professor of Administration and Director of the Public Policy Research Organization*

Judith W. Loubet, Dr. d'Université University of Montpellier, *Lecturer in Administration*

Newton Margulies, Ph.D. University of California, Los Angeles, *Associate Professor of Administration*

Joseph W. McGuire, Ph.D. Columbia University, *Professor of Administration (on leave F)*

Alexander M. Mood, Ph.D. Princeton University, *Emeritus Professor of Administration and Research Policy Analyst, Public Policy Research Organization*

Raymond E. Oliver, M.S. University of Southern California, *Assistant Dean of the Graduate School of Administration and Lecturer in Administration*

James L. Perry, Ph.D. Syracuse University, *Assistant Professor of Administration*

Patricia A. Renwick, Ph.D. University of California, Berkeley, *Assistant Professor of Administration (on leave F)*

Judy B. Rosener, M.A. California State University, Fullerton, *Lecturer in Administration*

Fred M. Tonge, Ph.D. Carnegie Institute of Technology, *Professor of Administration and Information and Computer Science (on leave F)*

COURSES

1 Introduction to Administration (4) F, S

Seminar, three hours. An overview of the field of administration/management. Fundamental concepts and realms of application are considered together to acquaint the student with the organization and administration of private and public enterprise. Both cognitive and experiential techniques are used to develop understanding of management as a field of study and of life.

181 Behavioral Science in Administration (4)

Seminar, three hours. Focus is twofold: (1) on the behavior of people as members of groups and organizations and (2) on the behavior of the organization in relation to its environment. Readings will emphasize concepts and models that can be used for analysis. Cases and simulations provide the student with opportunity to build experience in the use of conceptual material and to understand the thinking-acting processes of people in the role of administrator.

182 The Future by Design (4)

Seminar, three hours. Applicable to a variety of organizations, public and private. Introduction to methods of identifying problems and designing alternative plans, policies, and programs to meet perceived needs; to choose among them, act pursuant to them, monitor and evaluate their impacts, and modify them in the light of experience.

183 Operations Management (4)

Seminar, three hours. Introduction to accounting and managerial control (accounting information, analysis and interpretation of financial data, cost, and other controls) and to management analysis and policy (management of material and informational flows within organizations).

184 Women at Work (4)

Seminar, three hours. A seminar designed to explore and learn more about the working woman – her socialization towards work and career, her images of work and of the working woman,

- her education and training, her labor force status and activity, her earnings, and the incidence of inequality in employment opportunity and earnings of men and women.
- 185 Introduction to Managerial Accounting (4) W**
Lecture, three hours. Introduces the acquisition, reporting, and use of financial information in a business organization. Emphasis is on the use of information generated by the accounting system for decision making, planning, and control. Public sector analogies are considered wherever possible.
- 186 Introduction to Managerial Finance (4)**
Lecture, three hours. Provides an introduction to the basics of financial administration. Topics include capital budgeting, cost of capital, cash budgeting, working capital management, and long term sources of funds. The goal of the course is to provide students with a basic understanding of the issues and techniques involved in financial decision making. Prerequisite: Administration 185 or consent of instructor.
- 187 Workshop in Community Decision Making APEX (4)**
Using a computer-based simulation exercise, the workshop will involve participation in public and private decision making, community planning, and environmental management. Students will assume community roles within a simulated city-county environment. Development of decision, analysis, and community skills will be stressed.
- 201A Introduction to Quantitative Methods (4) F, Summer**
Seminar, four hours. Basic concepts of probability theory and methods of statistical inference, emphasizing application to administrative and management decision problems. Topics include random variables and their properties, the central limit theorem, analysis of variance and regression, nonparametric methods, and decision theory.
- 201B-C Quantitative Methods for Administration (4-4) F, W**
Seminar, four hours. The tools of mathematical modeling as a basis for managerial decision making. Deterministic models including linear programming, production smoothing, and inventory control. Probabilistic models including Bayesian and classical approaches to decision problems, design of experiments, computer simulation.
- 202A-B Organization Theories and Models (4-4) F, W, S**
Seminar, three hours. Description, analysis, and comparison of organizations, and behavior of individuals within organizations. Analysis of behavior in a wide range of organizations and societies. Theories and models relating to goals and objectives, structure, management and leadership, group influence, motivation and change.
- 203A-B Accounting and Financial Control (4-4) F, W, S, Summer**
Seminar, three hours. Nature and purpose of accounting, principal accounting instruments, and valuation problems. The finance function in the short and long run, including cost of capital and capital structure.
- 204 Microeconomics for Administration (4) F, W**
Seminar, three hours. Economic analysis of individual decision units. Topics include: introduction to demand and supply curves, production functions, cost curves, equilibrium of the firm, perfect competition, monopoly, imperfect competition, demand and supply of inputs. A knowledge of algebra and elementary calculus is assumed; special sessions will cover calculus for students deficient in it.
- 205 Macroeconomics for Administration (4) W, S**
Seminar, three hours. Principal determinants of national income and employment, with emphasis on concepts, tools, and data. Construction of national income and product accounts, classical, Keynesian, and other models, and applications to fiscal and monetary policy instruments.
- 206 Human Resources Utilization and Labor Relations (4) S**
Seminar, three hours. Policies dealing with an organization's relationship with its individual members and with its organized members. Topics include underlying assumptions of and values expressed by manpower policies, exploration and economic implications of alternative policies, labor organization, collective bargaining, and dispute settlement.
- 207 Interpersonal Dynamics (4) W, S**
Seminar, three hours. Theory and practice devoted to the nature and significance of interpersonal dynamics in organizational and administrative contexts, with the opportunity for the student to enhance awareness of interpersonal style and its impact as well as to develop increased competence. In addition, exercises and simulations are introduced to create an experiential learning climate. Students are asked to participate in experiential learning on a voluntary basis. Prerequisite: Administration 202A or consent of instructor.
- 208 Workshop in Administrative Problem Solving (4) F**
Seminar, three hours. Provides experiential learning opportunities in a generalized case-oriented approach, designed to integrate conceptual-theoretical knowledge and common tools and techniques as required by a problem or task context. Problems drawn from simulated activities, field projects, or other sources. May be repeated once for credit.
- 211A-B Seminar in Public Administration (4-4) W, S**
Seminar, three hours. First quarter will survey historical development of the field and introduce the structure and processes of the administration function in government. Second quarter will deal with public policy making viewed as a primary organizing concept for operationalizing administration processes in government.
- 212A-B Seminar in Business Administration (4-4) F, W**
Seminar, three hours. Business organizations, businessmen, environment of and interactions among business organizations. Values, goals and objectives; profit, decision processes, and finance; the various environments, ethics, conflict of interest, and social responsibility; competition and concentration; comparative analysis of business; input-output system. Prerequisites: Administration 201B-C, 204, 205, or consent of instructor.

213A-B Seminar in Educational Administration (4-4)

Seminar, three hours. The educational institution as an organization and the role of the administrator therein, with particular emphasis on higher education. Educational policies and policy making, financing of education, the societal context, employment patterns, innovations, current problems, and long-range trends.

221 Advanced Organizational Behavior (4) S

Seminar, three hours. Covers particular topics in the area of organizational behavior including motivation, leadership, group influences, adaptation and socialization, organizational structure, and communication. Prerequisites: Administration 202A-B or consent of instructor.

222 Organizational Change (4)

Seminar, three hours. Focus is on the processes and technologies for bringing about change in organizations. Emphasizes the rapidly growing body of theory, concepts, and techniques dealing with the ways in which organizations can become more adaptive and meet the challenges of a modern society. Prerequisites: Administration 202A-B or consent of instructor.

223 Methods of Organizational Research (4) W

Seminar, three hours. Assists students in developing their critical-analytical skills so that they will know how to criticize published research and theory. Moreover, the course is designed to give students the necessary skills to design their own research effectively. Prerequisites: Administration 202A-B or consent of instructor.

224 Advanced Operations Research (4) F

Seminar, three hours. An investigation of mathematical models appropriate for administrative decision making. Topics to be covered include linear, nonlinear, and dynamic programming, as well as queuing and other stochastic operations research models. Prerequisite: consent of instructor.

225 Statistical Decision Theory (4)

Seminar, three hours. Relates Bayesian models to classical models of hypothesis testing and provides unified structure for treating sequential analysis, Markovian decision problems, and dynamic programming.

226 Human Resources Management (4)

Seminar, three hours. Explores topics of interest in the area of manpower utilization and labor relations. Possible areas include public employee relations, issues in collective bargaining, minorities and unions, dispute settlement, and the utilization of minorities in organizations. Prerequisite: Administration 206 or consent of instructor.

227 Information Systems for Management (4) W

Seminar, three hours. Issues in managing the design, construction, and operation of computer-based information systems — nature of information systems for operations control and planning; responsibility and authority for information systems; selection among proposed applications; control of system develop-

ment activities. Assumes introductory level familiarity with computers and programming.

228 Legal Theory for Administrators (4) F

Examines nature, historical background, and practical operation of the American legal system and impact of that system upon policy making and administration in large organizations. Includes analysis of constitutional and political relationships which define and limit operation of system.

229 Marketing Fundamentals for Administration (4) S

Integration of concepts, strategy, and intelligence of marketing and management with the use of current examples. Topics to be covered include buyer behavior, theory of advertising, designing a marketing plan, product distribution, and the international scope of marketing.

230 The Consultative Process (4)

This course explores the process and dimensions of the consultant's role. Topics include identification and definition of the client system, establishing contracts, ethics in consulting, tools and techniques in consultation, terminating the relationship.

251 Managerial Finance (4)

Seminar, three hours. Topics include working capital policy, capital budgeting, sources of long term capital, and growth by merger and acquisition. Course will center around a collection of cases. Prerequisites: Administration 203A-B or consent of instructor.

252 Money and Capital Markets (4) F

Seminar, three hours. Roles, characteristics, and policies of institutions such as banks, savings and loans, and insurance companies, and the roles and characteristics of markets such as federal funds, commercial paper, and corporate bonds will be discussed, as will flow of funds and the term structure of interest rates, etc. Prerequisites: Administration 203A-B or consent of instructor.

253 Advanced Seminar in Business Administration (4)

Seminar, three hours. Further exploration of selected topics from Administration 212A-B. Prerequisites: Administration 212A-B.

254 Applied Microeconomics (4)

Seminar, three hours. Topics include consumer theory (theory of the household), expected utility, welfare economics, general equilibrium of the economy, introduction to externalities and public goods. This course may be taken without the core course "Microeconomics for Administration" and may be taken to fulfill the microeconomic core requirement.

261 Governmental Systems (4) W

Seminar, three hours. Structures, processes, interactions, and functions of evolving systems of federal, state, and local government in the U.S. viewed through multidisciplinary perspectives. Current controversies over theories and their underlying social and ideological bases.

262 Administration of Urban Service Systems (4) F

Seminar, three hours. General systems theory applied to understanding and administering governmental and other public urban service systems for housing, education, health, welfare, safety, recreation, development, etc.

263 Information Systems in Government (4) S

Seminar, three hours. Design, development, management, and evaluation of urban information systems, with special emphasis on trade-offs among efficiency, effectiveness, privacy, and other key values affected by alternative financing, operating, and control policies.

264 Community Power (4)

Seminar, three hours. Structure, processes, and exercise of power in the community relevant to the practice of administration. Evaluation of various normative and descriptive theories, testing alternative hypotheses in selected cases within Orange County.

265 Public Revenue and Expenditure Analysis (4) F

Seminar, three hours. Evolving concepts and their applications to the development of resources in support of urban service programs and to the allocation of these resources among the array of such programs.

266 Seminar in City Management (4) S

Will examine the government structure operating in California

cities with an emphasis on the Council-Manager form. Emphasis on the organization of decision making and the necessary implementation relating to the administration of the day-to-day operations of a city.

280 Special Topic Seminars (4-4-4)

Seminar, three hours. Each quarter a number of special topic seminars will be offered under the course numbers 280A-B-C-D-E- . . . These seminars are not sequential and may be repeated for credit providing the topic varies. Examples of possible topics include: Communication in Organizations, Power and Authority in Organizations, Selected Topics in Personnel, International Management, Health Care Administration.

298A-B-C Administrative Intern Seminar (4-4-4)

Seminar, three hours. The Administrative Intern Program provides students with an opportunity to put into practice concepts, skills, and tools acquired in other parts of the GSA program. Weekly seminar sessions augment internship experiences with analyses of relevant administrative issues. Intended primarily for second-year M.S. students.

299 Individual Directed Study (4)

Individual study under the direction of a selected faculty member. Prerequisite: determined by instructor.



College of Medicine

Stanley van den Noort, M.D. Dean

Good health care in its broadest sense — physical, mental, social, and environmental — is recognized as a right in our society. The expanding population with its increasing need for health care requires more physicians in all primary care specialties and subspecialties and a more efficient use of those physicians being trained. The UCI College of Medicine is responsible for providing quality educational programs for medical and health sciences graduate students, medical residents, and practicing physicians. In recognition of the need for better patient care, the College takes the responsibility of developing in its students attitudes of compassion, sympathy, and understanding for patients as individuals within their total environment. In addition, the College is committed to the expansion of medical knowledge through research that emphasizes ways to improve the delivery of patient care, and to community service through increased participation in community-based clinics and teaching programs in affiliated community hospitals, through the improvement of patient access to quality medical care, and through provision of continuing medical education programs for the medical, dental, veterinary, and nursing professions.

The major educational mission of the College of Medicine is to educate physicians in an atmosphere which gives appropriate emphasis to primary and family-oriented care without neglecting a sound foundation in the basic sciences, research, and specialty areas. This particular emphasis is a response to the recognized shortage of primary-care physicians and family practitioners and a relative abundance in certain geographical areas of subspecialty physicians. Medical students need to see common illnesses in the com-

munity, and it is the hope of the College of Medicine that many students who have had positive experiences providing primary medical care to patients in the community will be motivated to pursue careers emphasizing this aspect of medical care.

The College was founded as a private institution located in Orange County in 1896. Following consolidation with another school in 1914, it was relocated in Los Angeles. The College became part of the University of California in 1965 and moved to the UC Irvine campus three years later. Currently the College of Medicine graduates 84 physicians a year.

FACILITIES

Preclinical instruction at the College of Medicine is conducted in Medical Surge I and II, facilities on the Irvine campus. The facilities house the basic medical science departmental offices and research laboratories, student multidisciplinary laboratories, and academic support units such as the Medical Sciences Library, scientific equipment suite, and vivaria. Medical Sciences Unit I, a new basic science building, is scheduled for completion in mid-1978.

The University of California Irvine Medical Center (UCIMC), a comprehensive health care center, is the principal clinical facility of the College of Medicine operated by the University. The medical faculty of the College of Medicine, together with the medical resident staff, provides the professional care at the center. The hospital has a capacity of approximately 500 beds. The following services are provided at the center: medicine, surgery, obstetrics and gynecology, pediatrics, psychiatry, family medicine, pathology, radiology, physical medicine and rehabilitation, and

dentistry. The center also has cardiac, pediatric, neonatal, respiratory, burn, and general intensive care units.

The network of facilities operated by the University also includes the Community Clinic of Orange County (CCOC) located in Santa Ana and a clinic in Anaheim which will open in 1977. Two additional community clinics serving the County will be established by 1980. The College of Medicine also anticipates further expansion of an instructional program in rural clinics.

Major teaching and research programs of the College of Medicine are also located at the Long Beach Veterans Administration Hospital and the Memorial Hospital Medical Center of Long Beach. Additional academic programs are conducted in affiliation with Childrens Hospital of Orange County, St. Joseph Hospital, and St. Jude Hospital and Rehabilitation Center.

ADMISSION TO THE M.D. PROGRAM

The College of Medicine accepts applicants of all ethnic and racial backgrounds, religious preferences, and both men and women. Disadvantaged students are strongly encouraged to apply. All inquiries should be addressed to the Office of Admissions and Records, College of Medicine, University of California, Irvine; Irvine, California 92717.

Since the University of California is a state-supported university, definite preference is given to California residents. Qualified nonresidents may apply.

Students are eligible for admission after completing three or four years of college work, providing they have completed the required courses. First-year students are admitted only in July of each year. Candidates for admission to the first-year class in the College must meet the following requirements:

1. The candidate must have completed a four-year high school course, or its equivalent, acceptable for enrollment in the college of letters, arts, and sciences of an accredited university, college, or community college.
2. The candidate for admission must have completed, with demonstrated superior scholarship record, a minimum of three full years of premedical work; this work must total not less than 90 semester units or an equivalent number of quarter units, and be acceptable for Bachelor's degree credit in an accredited institution of higher learning. The number of units carried is to be the amount necessary to complete the Bachelor's degree requirements in no more than four

years. Candidates for admission may submit community college credit only to the extent granted on transfer to a four-year college or university. For scholarship evaluation, actual letter or numerical grades in courses are highly desirable and are essential in the areas of required subjects. The following minimum specified subjects of premedical work are required of all candidates:

	Semester Units	Quarter Units
Chemistry	16	24
Must include:		
General Chemistry (Inorganic)		
Organic Chemistry		
Physics	8	12
Biology and/or		
Zoology	12	18

We recommend, but do not require, that the student take courses in mathematics (through integral calculus), genetics, vertebrate embryology, and physical chemistry.

Premedical students are advised to take advantage of the opportunity for intellectual maturation afforded by a well-rounded liberal arts curriculum. The study of English is of particular importance.

3. The candidate must attain a satisfactory score on the New Medical College Admission Test. The score report for this test must be received by the Admissions Office of the College before acceptance may be granted. Inquiries regarding this test should be addressed to the Medical College Admission Test, The American College Testing Program, P.O. Box 414, Iowa City, Iowa 52240.

The latest test which we can accept is the test given in September of the year preceding anticipated admission.

4. A personal interview with a member of an Interview Committee is required of some candidates after preliminary consideration of their application for admission. Letters of recommendation from college professors are invited.

Western Interstate Commission for Higher Education

The College of Medicine participates in the student exchange program of the Western Interstate Commission for Higher Education, under which qualified legal residents of western states without medical schools — Alaska, Idaho, Montana, Nevada, and Wyoming — are given a reduction of

tuition and fees. To be eligible for this program the student must apply to the WICHE certifying officers in the student's own state. For addresses of certifying officers, write to the Western Interstate Commission for Higher Education, University East Campus, Boulder, Colorado 80304.

Procedure for Admission

The College is a member of the Association of American Medical Colleges Applications Service (AMCAS) as of the application year 1972. Requests for applications should be submitted directly to the College.

The College Admissions Committee will review all AMCAS applications and may then request submission of additional material, including letters of recommendation, supplemental transcripts, personal information form, two photographs, and a fee of \$20. No additional material should be submitted until requested by the College.

Applications may be submitted at any time between June 1 and November 15 of the year preceding that into which entrance is desired.

No application for admission will be accepted which does not clearly indicate that all the required subjects will have been completed by the date of entrance. Tentative acceptance may be given, but final acceptance is contingent upon actual evidence of satisfactory completion of courses. Failure to meet this requirement or falsification of information will be grounds for rejection or dismissal.

Selection of Candidates

The fulfillment of scholastic entrance requirements and the ability to pay tuition and other fees do not of themselves constitute a right to study medicine. This privilege is sought by many more applicants than educational facilities can accommodate. The privilege is granted, by action of the Admissions Committee and the Dean, to those who possess, in addition to scholarship, other attributes important in the physician.

Recommended Acceptance Procedures of the Association of American Medical Colleges

These acceptance procedures have been approved by the Executive Council of the Association of American Medical Colleges upon recommendation of the Committee on Research and Education. Both applicants and schools are responsible for abiding by their spirit.

1. No offer of admission to medical school should be made

to an applicant more than one year before entering the course of instruction offered by the medical school.*

2. When offers are made to applicants, the students are required to file a statement of intent within two weeks of the receipt of the offer. The statement of intent leaves the student free to withdraw if accepted by a preferred school.
3. Each medical school should prepare and distribute to applicants and college advisors a detailed schedule of its application and acceptance procedures and should adhere to this schedule unless it is publicly amended.
4. No medical school should use any device which implies that acceptance of its offer creates a moral obligation to enroll at that school. Applicants are free to deal with other schools and accept an offer from one of them even if a deposit has been paid to another school and must be forfeited. Every accepted applicant does retain under all circumstances an obligation to notify a school promptly if the decision should be not to accept the offer, and to withdraw at once after accepting an offer from another school.
5. Each school is free to make appropriate rules for dealing with accepted candidates who hold, without adequate explanation, one or more places in other schools. These rules should recognize the problems of the student who has multiple offers, and also of those applicants who have not yet been accepted.

No candidate for admission will be considered who has been dismissed from any college, university, or other professional school. If the applicant has attended another professional school, complete, official transcripts and a letter of honorable dismissal from that school must be submitted.

Notice of Appointment

The Dean of the College will notify the candidate of an appointment as soon as the application has been acted upon by the Admissions Committee. Written acceptance of the appointment must be sent to the College within two weeks after receipt of the notice of appointment. No advanced

*Under special circumstances a school may make an offer more than one year before the expected entrance date to encourage the educational development of the student, but all such offers should state explicitly that the student is completely free to apply to other schools at the usual time.

deposit to hold a position in the class is required of applicants. The statement of intent to register leaves the student free to withdraw if accepted by a preferred school. This is in keeping with the recommendations of the Association of American Medical Colleges.

MEDICAL CURRICULUM

The M.D. curriculum consists of 16 quarters or four years. Academically qualified students may shorten their medical education and complete the curriculum in three and one-half calendar years. Students also may extend the required first year of basic sciences to two years.

Preclinical Core

The first four quarters of the curriculum are devoted to the principles of human biology. The next two quarters deal with preclinical subjects, introduction to the clinical setting, and a study of the mechanisms of disease. The following six quarters are devoted to required clinical clerkships. The fourth year consists of three quarters of elective courses and clerkships.

The first two quarters of the first year are devoted to the subjects of biochemistry, anatomy, and human behavior. Anatomy includes specific courses in gross anatomy, embryology, histology, and neuroanatomy. The next two quarters include studies in physiology, medical microbiology, and pathology.

The first six weeks of the fifth quarter are a vacation period. The remainder of the quarter and all of the sixth quarter are devoted to pharmacology, community and environmental medicine, mechanisms of disease, examination of the patient, and introductions to medicine and surgery.

A detailed description of preclinical courses follows:

Anatomy

The gross and microscopic morphology of the human body is studied by means of lectures, histology laboratories, and dissection augmented by appropriate radiographic films. Morphology and function are interrelated throughout the course of study. The fundamentals of genetics and embryology are included.

Biochemistry

The fundamentals of classical and molecular biochemistry are covered, including the structure, function, and biosynthesis of macromolecules, metabolic interrelations and control mechanisms, and biochemical genetics. Clinical correlations are presented.

Human Behavior

Lectures and demonstrations introduce the medical student to

the basic science aspects of psychiatry and human behavior. These range from neurochemistry and psychopharmacology to the anatomy and physiologic substrates of human behavior. Other aspects of the course deal with normal and abnormal behavior, definition of mental health and mental illness, and studies of the family, social groups, social dynamics, sexual behavior, sleep, and drug abuse. Anthropological aspects are considered, as are current theories of the biochemical basis of depression and schizophrenia.

Physiology

The course consists of lectures, tutorials, audio tapes, computer-based instruction, and laboratory exercises. The material presented covers vertebrate physiology with emphasis on man and on the relationship between the function of normal tissues and the processes of disease.

Medical Microbiology

The biology of human microbial flora and the flora of selected aspects of the environment is presented. Emphasis is placed on those unique aspects of microbial activities and organization, metabolism, regulation, and genetics which contribute to pathogenicity, to dissemination and its control, and to the susceptibility of these organisms to antimicrobial agents as well as to the host defense mechanisms.

Pathology

Disease mechanisms are correlated with practical laboratory work; theoretical aspects of clinical pathology provide a view of disease mechanisms. The various disciplines are amalgamated so that the student will think of disease as a dynamic process which affects the organism at molecular, cellular, tissue, and organ levels.

Mechanisms of Disease

The course is designed to instruct the student in the basic mechanisms and manifestations of disease. An organ system approach is utilized.

Community and Environmental Medicine

The community medicine portion covers health and medical care systems with emphasis on preventive medicine. Environmental medicine deals with the effects of toxic substances, occupational hazards, environmental pollution, and radiation.

Pharmacology

The preclinical course in pharmacology deals with various classes of drugs used for specific or symptomatic therapies of disease states. Emphasis is on the mechanism of action of drugs at the cellular, organ, and system level, and their use in diagnosis and therapy, and on interactions of drugs used concurrently. This course is presented in lectures and selected laboratory procedures which illustrate pharmacologic principles.

Examination of Patient

The course is designed to give the student basic instruction and experience in the elements of physical diagnosis and patient interviews.

Introduction to Surgery

Students are prepared for the surgical clerkship by orientation to the method, approach, and history of surgery and to specific surgical problems.

Principles of Surgery

Students are introduced to aseptic technique and instructed in rudimentary surgical skills. Techniques are developed in the surgical laboratory and the operating room. The aim is to provide exposure to commonly encountered procedures.

Introduction to Medicine

The course is designed to introduce the student to operations, history taking, and patient management through the case approach.

Clinical Clerkships and Electives

Six quarters devoted to clinical clerkships are taken during the seventh through twelfth quarters. Clinical experiences are provided in medicine, surgery, clinical neurosciences and psychiatry, pediatrics and human development, gynecology and obstetrics, anesthesiology, physical medicine and rehabilitation, family medicine, radiology, and pathology. Clerkships may be taken in any order, but students will have an opportunity to take a six-week vacation period during the quarter they study radiology and pathology. With the exception of radiology and pathology, a portion of the clinical experiences in each of these clerkships will emphasize primary care as well as continuity of care.

During the fourth year of medical education, there are three quarters of elective courses and one quarter of vacation. Any department of the College of Medicine may offer elective courses, but students must take at least eight weeks of surgery or surgically related subjects and at least eight weeks of medicine or medically related subjects. Additional electives available include basic sciences electives, independent study and research electives, and other College of Medicine departmental electives.

With the consent of the student's advisor and the Dean, the student may take a course offered by other schools on the Irvine campus. A student may take a particular elective only once.

A detailed description of clinical clerkships follows:

Medicine

Both patients and outpatients are studied under appropriate supervision. Whenever possible, students follow the same patients over an extended period of time, enabling them to develop an understanding of the course of an illness and its effect on the patients and their families. The major thrust of this quarter is to

provide instruction in the careful, analytical approach to diagnosis and rational, compassionate therapy.

Surgery

Students study both outpatients (including those in the emergency room) and inpatients. This clerkship emphasizes diagnosis, pathophysiology, and general approaches to the treatment of surgical patients, including the special problems of mass casualties. The student becomes an integral part of the surgical team.

Pediatrics and Human Development

This includes instruction in the management and nutrition of normal and sick infants and children; relationships with parents and other family members; normal development of the baby into childhood and adolescence; diagnosis of developmental defects; general approaches to treatment and rehabilitation; common infections predominant in infancy and childhood; and peculiarities of the effects of medication in children.

Psychiatry and Clinical Neurosciences

Each student studies patients under supervision providing opportunities to learn about normal and abnormal human behavior and interrelationships between psychological and physiological processes in both "functional" and organic disease. The neurological evaluation of patients, the pathophysiology and anatomic correlates, and the medical and surgical management of brain, nerve, and muscle disease are taught by the clinical neuroscience curricular group.

Obstetrics and Gynecology/Anesthesiology/Physical Medicine and Rehabilitation

During this clerkship students are taught the scientific basis of gynecology and obstetrics, including reproductive physiology, anatomy, fetal physiology, and pathology. Practical experience is offered in the management of normal and abnormal pregnancy and delivery. Instruction is given in office and surgical gynecology.

Instruction and supervised participation in techniques of anesthesia are provided together with didactic material on the mechanism and effects of all forms of anesthesia.

During the physical medicine and rehabilitation rotation, students are assigned patients who are in an active rehabilitation program. Emphasis is placed on the rehabilitation of the total patient. The medical aspects of the patient's care are discussed in detail. Instruction is provided in the various physical techniques of rehabilitation and in the psychosocial factors which permanently affect this process.

Pathology/Radiology

This course provides the major opportunity in the core curriculum for the study of anatomical pathology, surgical pathology, clinical laboratory pathology, and forensic pathology in a clinical setting. Interactions between pathology, tumor immunology, dermato-pathology, cytology, neuropathology, medical jurisprudence, and forensic pathology are demonstrated.

The role of radiological sciences (diagnostic and therapeutic) in relation to medicine and surgery is taught through attendance at

daily clinical/film conferences, exposure to the film learning laboratory, and small group tutorials in each subspecialty. Emphasis is given to understanding the risk/benefit ratios involved in the use of ionizing radiation for diagnosis and treatment, and the clinical indications for any given radiological procedure.

Primary Care

Primary care is a mandatory part of the core clerkships. This program enables students to participate in an outpatient primary care curriculum for one-half day per week for four of the six core quarters. These quarters will run consecutively and thereby occupy one calendar year. Students may choose to participate in clinics supervised by Family Medicine, Internal Medicine, or Pediatrics. Students will acquire patients who will identify with them (and their preceptors) as their primary care physician.

MEDICAL RESIDENCY PROGRAMS

The College of Medicine offers residency training programs for medical doctors in adult allergy, anesthesiology, cardiology, cardiovascular surgery, child psychiatry, dermatology, diagnostic radiology, family medicine, gastroenterology, general surgery, hematology and oncology, infectious diseases, internal medicine, neonatology, neurological surgery, nuclear medicine, obstetrics and gynecology, ophthalmology, orthopedic surgery, otolaryngology, pathology, pediatric allergy, pediatrics, physical medicine and rehabilitation, plastic surgery, psychiatry, pulmonary diseases, renal diseases, therapeutic radiology, thoracic surgery, and urology. All programs meet the formal standards of the American Medical Association and the appropriate specialty boards.

M.D.-Ph.D. PROGRAMS

Exceptionally well qualified students interested in careers in academic medicine may be admitted to both the M.D. and one of several Ph.D. programs. Information can be obtained by writing to Dr. Peter Hall, Chairman, Department of Physiology, College of Medicine, University of California, Irvine; Irvine, California 92717.

GRADUATE ACADEMIC PROGRAMS

The basic medical science Departments of Biological Chemistry, Medical Microbiology, and Physiology, of the College of Medicine, participate jointly with the School of Biological Sciences in offering graduate instruction leading to an advanced degree in Biological Sciences. In addition, the Department of Radiological Sciences and the Department of Medical Pharmacology and Therapeutics offer specialized M.S. and Ph.D. programs.

Application materials may be obtained by writing the Graduate Division, University of California, Irvine; Irvine, California 92717. A detailed description of the graduate academic programs by department follows:

Biological Chemistry

The Departments of Molecular Biology and Biochemistry, in the School of Biological Sciences, and Biological Chemistry, in the College of Medicine, jointly offer graduate study under the administration of the School of Biological Sciences. The program makes extensive use of health sciences facilities, in addition to those of the School of Biological Sciences. The curriculum is designed to produce creative and productive scientists who have an in-depth comprehension of modern biochemistry and molecular biology and who are highly competent in a given subspecialty. The first year student is required to take a core of advanced courses (204, 205A-B, and 207), to become associated with the laboratories of at least three different investigators, and to attend the 201A-B-C seminar series. Upon successful completion of the first year, the student is given a comprehensive oral examination to test breadth and depth of knowledge. Although further supplemental work may be recommended, the student normally begins a specific research project in the second year. Participation in the seminar series (201A-B-C) and completion of at least one satellite course per year (210-279) is expected of all continuing students. Regular teaching of undergraduates is part of the training of graduate students at all levels. The graduate committee may waive some of the above requirements for candidates for the Master's degree. See page 92 for further information, including course descriptions.

Applicants should have adequate undergraduate preparation in calculus, physics, physical chemistry, organic chemistry, and biochemistry. Students who have not had an adequate physical chemistry course are expected to take Chemistry 130A-B-C during their first year.

Medical Microbiology

Graduate instruction and research in medical microbiology, leading to the Ph.D. in Biological Sciences, is offered by the Department of Medical Microbiology, College of Medicine. The curriculum of the Department is designed to provide advanced training to individuals interested in microorganisms and cultured mammalian cells, the activities of viruses, the molecular biology of infectious agents, and metabolic and regulatory processes which are fundamental to the immune response. One purpose of this curriculum is to accel-

erate deployment of scientific skills against problems that have medical importance. The program consists of two types of activities. One of these is organized around formal and informal didactic work, while the second concentrates on research activities that have their emphasis on the molecular basis of immune and microbial activities.

It is recommended that the student's undergraduate preparation include courses in calculus, physical chemistry, and biochemistry. Before a graduate degree will be awarded, the student must demonstrate competence, by course work and examination, in biochemistry, physical chemistry, genetics, and various aspects of medical microbiology and immunology. During the first year, all students in the graduate program will be expected to spend approximately six weeks in various faculty members' laboratories with the aim of becoming familiar with the research approaches and the laboratory techniques employed in each specific research area. Graduate students are required to take graduate courses in biochemistry, and Medical Microbiology 210, 212, 213, and 214. Additional course work will reflect the interest of individual students. The major remaining requirement for the Ph.D. degree will be the satisfactory completion and oral defense of a dissertation consisting of original research carried out under the guidance of a faculty member. See page 96 for further information, including course descriptions.

Medical Pharmacology and Therapeutics

The Department of Medical Pharmacology and Therapeutics offers graduate study leading to the M.S. and Ph.D. in Pharmacology and Toxicology. Applicants are required to have a background in the physical and biological sciences. The following subjects constitute the general basis for preparation: college-level mathematics including calculus, college physics, analytical, organic, and biological chemistry, gross and microscopic anatomy, and human physiology. All courses should include laboratory experience. Students who have not completed courses in all these subjects may make up deficiencies by taking courses or by examination during the period of graduate study. Each student's curriculum will be tailored to individual needs for prerequisites and ultimate objectives in pharmacology and toxicology. The Graduate Record Examination scores (aptitude and advanced parts) are also required for admission.

All Master's students must fulfill the requirements of Plan I (Thesis Plan) and must participate in the Department seminars. Each candidate for the M.S. degree must prepare a research thesis acceptable to the thesis committee. The

formal requirements include completion of 30 academic units and a research thesis. At least 12 of the 30 units must be graduate work in pharmacology including Pharmacology 241A-B. Also, courses in neuroanatomy and in statistics must be completed. The remaining unit requirements may be satisfied by courses approved by the faculty advisor. No examinations other than course examinations are planned for candidates for the M.S. degree.

Medical students can acquire the M.S. degree by applying for admission to the Graduate Division during their medical education. Such students will be required to spend a minimum of three quarters within the Department during which time they will participate in Department seminars and programs and complete an acceptable research thesis. Vacation and elective quarters may be applied towards the departmental requirements.

Departmental requirements for the Ph.D. include the following: all the course requirements of the M.S. program; Pharmacology 248A-B-C (Advanced Topics in Pharmacology and Toxicology); Pharmacology 298 (Seminar) each quarter; a course in computer science; three quarters of teaching experience; any additional elective courses assigned by the faculty advisors; Pharmacology 299 (Research culminating in an acceptable dissertation). Each candidate for the Ph.D. degree must complete a piece of original research and prepare a dissertation based on it which is acceptable to the candidate's committee.

Before recommendation for candidacy, each student, upon completion of most course requirements, especially Pharmacology 248A-B-C, will take a written qualifying examination set by the staff of the Department of Medical Pharmacology and Therapeutics to determine the student's competence in pharmacology and toxicology. The full-time student is expected to pass the written qualifying examination by the eighth quarter and the oral qualifying examination by the eleventh quarter. The research work upon which the dissertation will be based should begin before the tenth quarter and all requirements for the Ph.D. degree completed within four to five years following the Bachelor's degree. Extension of time requirements will be considered by formal petition to the student's doctoral committee. Provisions for other than full-time students may be made on an individual basis. Upon completion of the dissertation, the student will take an oral examination to defend the dissertation which will be open to the public and conducted by the student's doctoral committee. Residency requirements are those established by the University.

Graduate courses in Medical Pharmacology and Toxicology are as follows:

- 241A-B Medical Pharmacology and Toxicology (3-3) Summer, F**
Lecture and laboratory, eight hours. Source, composition, site and mechanism of action, toxicology, and usage of chemical agents in medical practice. Relation of chemical and physical properties to pharmacologic action. Dose-response and time relationships, absorption, metabolism, excretion, and differences in systemic and species response. Poisons, principles of toxic action, and toxicity evaluation. Sources of toxicants in the environment. Prescription writing; legal responsibilities in the use of certain drugs.
- 248A-B-C Advanced Topics in Medical Pharmacology (4) W, S, F**
Lecture, conferences, seminars, four hours. A detailed study of important areas of pharmacology and toxicology integrating biochemical, pathological, physiological, and clinical aspects with emphasis on mechanism of action of drugs. Prerequisite: Pharmacology 241.
- 260 Principles of Toxicology (3) W**
Lecture, three hours. Toxicity of chemicals demonstrating mechanism of action where known, toxicants in the environment, quantitative methods in measuring acute toxicity, methods in chronic toxicity; principles of toxic tissue injury, primarily liver, kidney, nerve, and lung; chemical mutagenesis, teratogenesis, and carcinogenesis.
- 265 Environmental Toxicology (5) S**
Lecture, one hour. Survey of toxicants in air, water, and especially food; industrial toxicology, epidemiology of human toxicoses; effects of toxicants on ecology.
- 298 Seminar (2) W, S, F**
Presentation and discussion of current problems and methods in teaching and research in pharmacology, toxicology, and therapeutics.
- 299 Research (1 to 8) W, S, F**
Research work for M.S. and/or Ph.D. dissertation.

Physiology

Graduate instruction and research in Physiology, leading to the Ph.D. in Biological Sciences, is offered by the Department of Physiology, College of Medicine. The Department provides research opportunities in the molecular biophysics of membranes and proteins, endocrinology, and the physiology of exercise, respiration, and the nervous system. The core curriculum provides the student with a broad background in physiology and the closely related fields of anatomy and biochemistry. Elective courses permit in-depth exploration of particular areas. Interdisciplinary dissertation research involving the background of more than one faculty member is encouraged.

Prerequisites for admission normally include a bachelor's degree in one of the biological sciences, physics, chemistry, mathematics, or engineering, as well as undergraduate courses in calculus, organic chemistry, physical chemistry, biochemistry, and neurophysiology (psychobiology). However, up to two of these undergraduate prerequisites may be taken as elective courses as part of the graduate program. The core program consists of two quarters of introduction to physiology, one quarter of human morphology, two quarters of graduate level biochemistry, one quarter of experimental surgery, two quarters of advanced physiology, and five elective courses. Students will receive training and experience in teaching and scientific writing.

In addition, during the first year students will spend one quarter in each of three different laboratories where they will become acquainted with the areas of research and experimental techniques employed. They also will attend the weekly colloquium in physiology.

A written comprehensive examination will be administered at the end of the second year. The examination will cover all the material presented in Introductory and Advanced Physiology, Anatomy, Biochemistry, and the student's chosen field of research. After successful completion of the comprehensive examination, students will take an oral examination covering their research. A committee for the purpose of administering this examination will be appointed by the Dean of the Graduate Division. Success in this examination is the basis for admission to candidacy.

The last two years in the program will be devoted to research with a minimum of formal course work. A dissertation will be presented in writing and defended in an oral examination.

See page 98 for further information, including course descriptions.

Radiological Sciences

The graduate program of the Department of Radiological Sciences includes the disciplines of diagnostic radiology, radiotherapy, radiobiology, medical physics, radiological engineering, nuclear medicine, and ultrasound. The program leads to the Master's or Ph.D. degree in Radiological Sciences and prepares individuals for careers in medical physics, bioengineering, radiobiology, and radiological engineering.

The program emphasizes the basic physical principles governing the interaction of radiation with matter. It further

comprises detailed instruction in the nature and consequences of the biological effects and the medical applications of radiant energy. It is especially designed to develop the student's professional knowledge and critical judgment in regard to the range and usefulness of medical radiological procedures, familiarity with the clinical environment and its problems, and appreciation of the radiation health aspects of medical radiological methods.

Admission to these programs is through the Graduate Division with departmental approval and is based on letters of recommendation, Graduate Record Examination scores, grades, and other qualifications. Preference will be given to applicants with undergraduate majors in physics, engineering, chemistry, biology, or combinations thereof. Those with major preparation in chemistry or physics are advised to have already completed the equivalent of three quarter courses in biology. Biology majors should preferably have had statistics, chemistry, and elementary physics. Departmental review or examination will determine deficiencies in preparation or background; deficiencies will ordinarily need to be corrected during the first year.

The Department of Radiological Sciences contains well-equipped radiodiagnostic, radiobiologic, engineering, and medical physics laboratories. The areas in which thesis topics may be pursued include radiobiology; the studies of immune mechanisms using radioisotope techniques; studies of solid tumors; the physical, engineering, and optical aspects of imaging in radiodiagnosis, nuclear medicine, and ultrasound; the physiology and psychology of cognitive processes; receiver operating curves; the social cost/benefit ratios of diagnostic procedures.

The curriculum is comprehensive and is designed to educate radiological physicists, biomedical engineers, radiobiologists, and radiological health specialists. Together with the practical experience gained at the associated hospitals or University laboratories, our core program constitutes the academic background required for the National Board Examinations in either radiological physics or health physics.

Application deadline for the fall quarter is June 1 of each year. Applications for the winter and spring quarters will be accepted only under special circumstances. Preference will be given to candidates with proven research experience.

Basic preparation for the M.S. program includes the following: the applicant must have received a Bachelor's degree in Physics, Chemistry, Biology, or Engineering, either from

the University of California or from another approved college or university, and must have further training in mathematics, the physical sciences, and the biological sciences as prescribed by the Admissions Committee in Radiological Sciences.

Under Plan I, the student completes the Radiological Sciences core courses with an average grade of B or higher and then presents an acceptable thesis based on research done while in the school. Under Plan II, the student completes the Radiological Sciences core courses plus three additional courses (all with an average grade of B or higher) in the area of the student's field of specialization and satisfactorily passes a comprehensive oral and written examination. The M.S. program requires a minimum four quarters of residency, satisfactory completion of prescribed course work, and an appropriate demonstration of achievement.

Basic preparation for the Ph.D. program includes the following: the applicant must have received a Bachelor's degree in Physics, Chemistry, Biology, or Engineering, either from the University of California or from another approved college or university, and must have further training in mathematics, the physical sciences, and the biological sciences. A Ph.D. degree is awarded on the basis of evidence that the recipient possesses knowledge of a broad field of learning and expert mastery of a particular sector of it.

The Ph.D. degree candidate must have completed with a minimum grade average of B, the Radiological Sciences core course program or its equivalent from another school, additional courses in areas of special interest, seminars, and research. Ph.D. degree candidates may complete the residency requirements in a minimum of six quarters. Four to six years beyond the Bachelor's degree is typically required to complete the degree.

All students will be required to pass written and oral qualifying examinations after the completion of the Radiological Sciences core course program, or upon entrance into our program with an equivalent M.S. degree from another approved school. The student must pass an oral advancement to candidacy examination representing the student's field of proposed research. A candidacy committee, nominated by our department and appointed by the Dean of the Graduate Division, conducts the candidacy examination and determines whether the student is ready to move into the dissertation phase. A dissertation representing original research on the student's principal field of study is required of every Ph.D. candidate. The research dissertation is ex-

pected to demonstrate critical judgment, intellectual synthesis, and imaginative creativity. The doctoral committee administers a dissertation defense during the final quarter of graduate study.

Graduate courses in Radiological Sciences are as follows:

222A-B Computer Programming for Radiology (4-4) F, W

Lecture, four hours. Introduction to programming languages and techniques for use in diagnostic radiography, radiotherapy, and nuclear medicine. Computerized data reduction, error analysis, and display of data. Previous programming and statistics experience are not required.

230 Survey of Medical Physics and Bioengineering (4) S

Lecture, four hours. A survey of current applications of non-radiological physics to medicine. Topics include: lasers, microwaves, electric fields, magnetic fields, medical electronics, biomaterials, prostheses, etc. Intended for radiological science, engineering, physics, and biology students.

232A-B Radiation Detection and Dosimetry (4-4) F, W

Lecture, four hours. The physical properties of ionizing radiation and its interaction with matter; methods of detection and measurement; physical basis of radiation dosimetry.

264A-B Cellular and Mammalian Radiobiology (4-4) W, S

Lecture, four hours. The interaction of ionizing radiation with molecules, cells, tissues, organs, and organisms. Mammalian radiation effects; carcinogenesis, genetics, radiotherapy.

248 Radiological Shielding, Protection, and Public Health (4) S

Lecture, three hours. The study of radiation exposure, radioactive waste disposal, medical radiation exposure, and radiation protection guides.

264A-B Medical Imaging in Radiodiagnosis, Nuclear Medicine, and Ultrasound (4-4) F, W

Lecture, four hours. This course will deal primarily with the practical applications of physics and engineering principals to the diagnosis of human disease processes utilizing radiodiagnostic, nuclear medicine, and ultrasound imaging techniques.

290 Practicum in Radiology (4-4-4) F, W, S

298A-B-C Seminar in Radiological Sciences (4-4-4) F, W, S

Directed review of literature, oral presentations, and discussions of recent advances in areas of current interest. Varies each quarter.

299 Research/Special Study (4 to 12)

Students of all levels with adequate preparation are encouraged to carry out independent investigations under guidance of a staff member.

COLLEGE OF MEDICINE FACULTY

Stanley van den Noort, M.D. Harvard Medical School, *Dean of the College of Medicine and Professor of Medicine (Neurology)*

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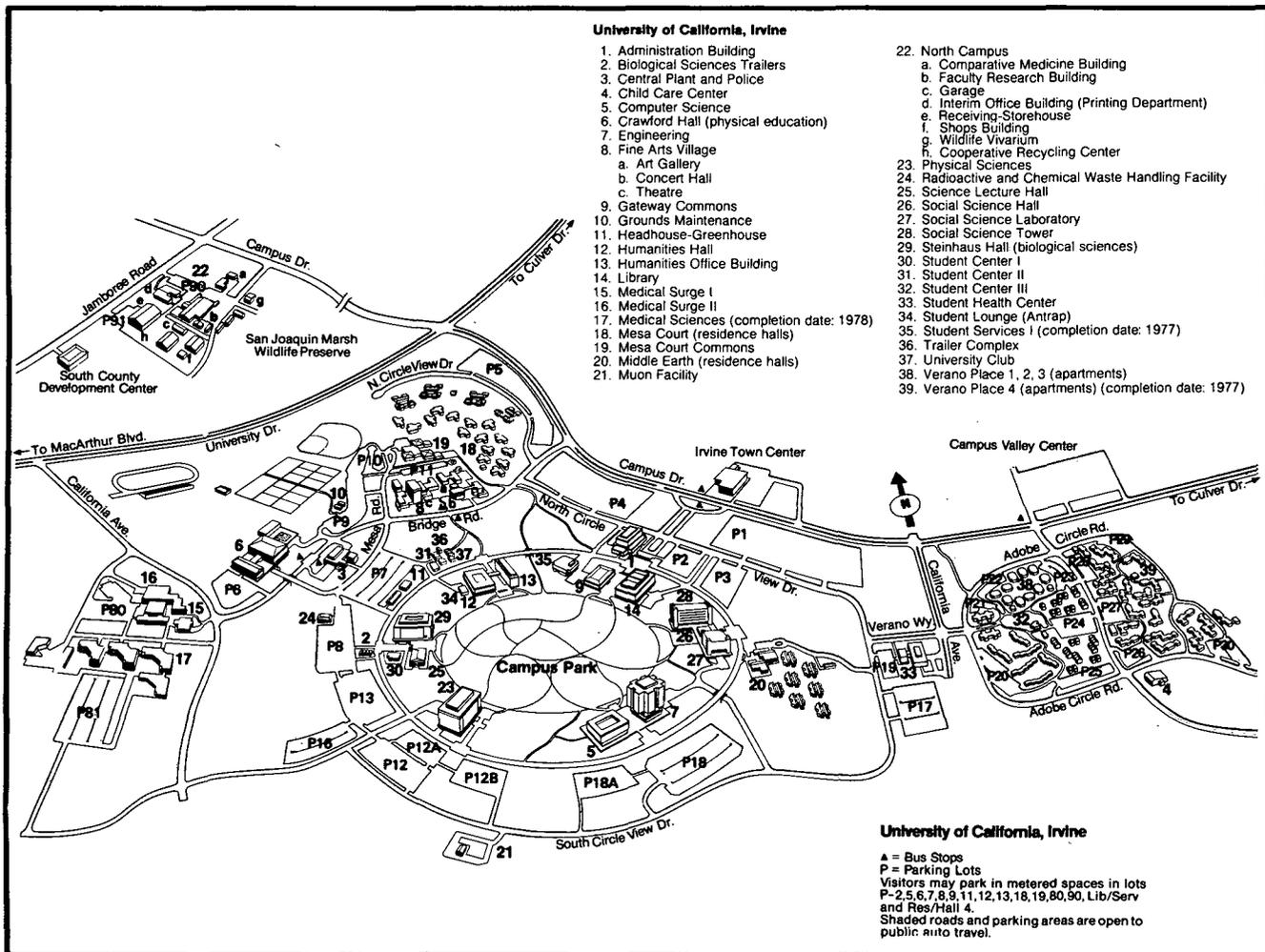
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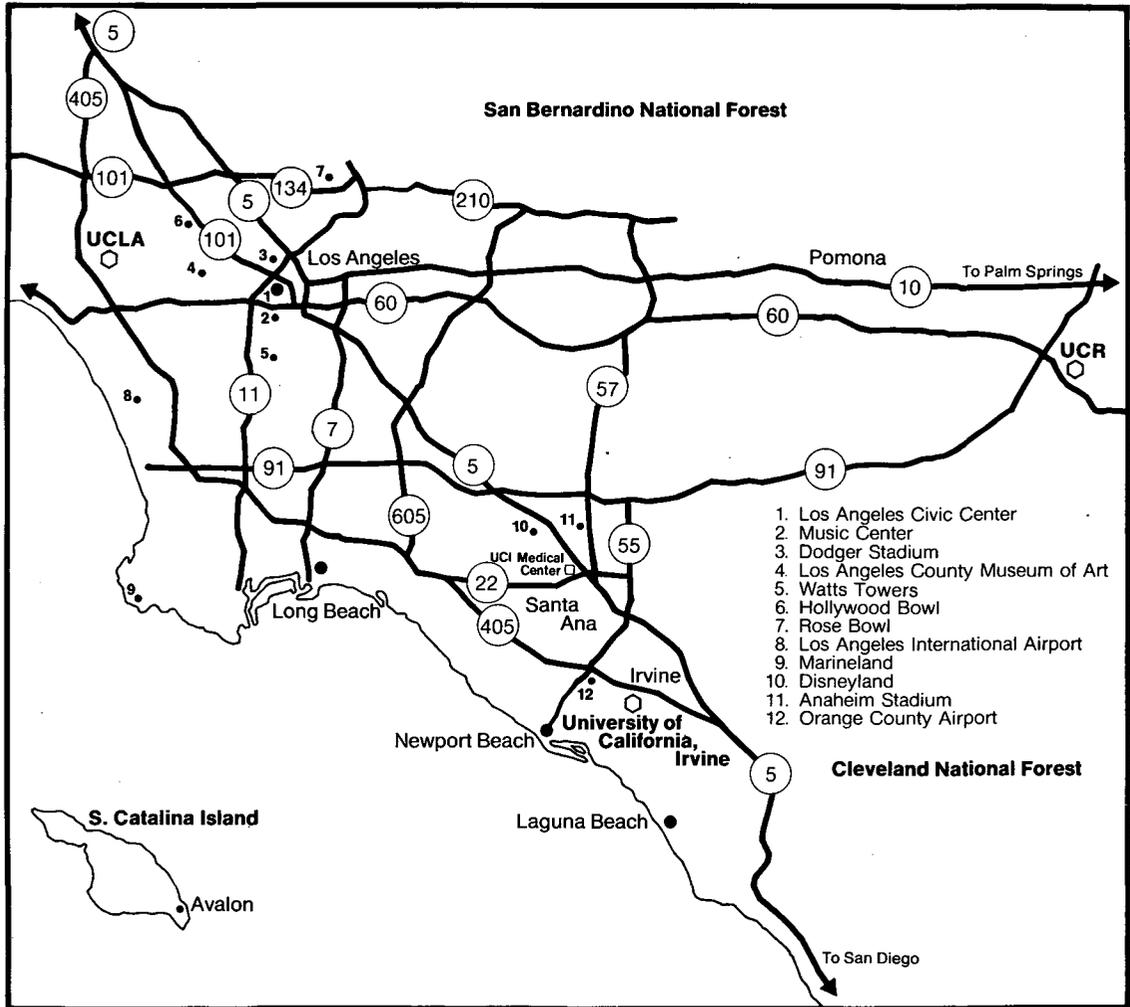
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As required by Section 177.64 of the Federal regulations governing the Guaranteed Student Loan Program, published in the *Federal Register* on February 20, 1975, the following information concerning salary and employment data is provided:

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FIELD OF STUDY	DEGREE LEVEL OF GRADUATES			PROBABLE OR DEFINITE JOB COMMITMENT ²
	BACHELOR'S	MASTER'S	DOCTORATE	
	AVERAGE MONTHLY SALARY ¹			
Engineering	\$960-1,374	\$1,065-1,513	\$1,437-1,954	85.3%
Humanities	532-1,018	684-1,242	..	73.9
Life Science	587-1,033	77.9
Management	..	1,067-1,579	..	90.3
Physical Science	811-1,289	..	1,304-1,974	77.1
Social Science	579-1,061	694-1,324	..	74.0

¹Source: A 1976 national survey of a representative group of colleges conducted by the College Placement Council, representing the 80 percent range of offers 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.

²Source: *The Job Market for UCLA's 1976 Graduates*. Percentages are based only upon those students who planned to work immediately after graduation.



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