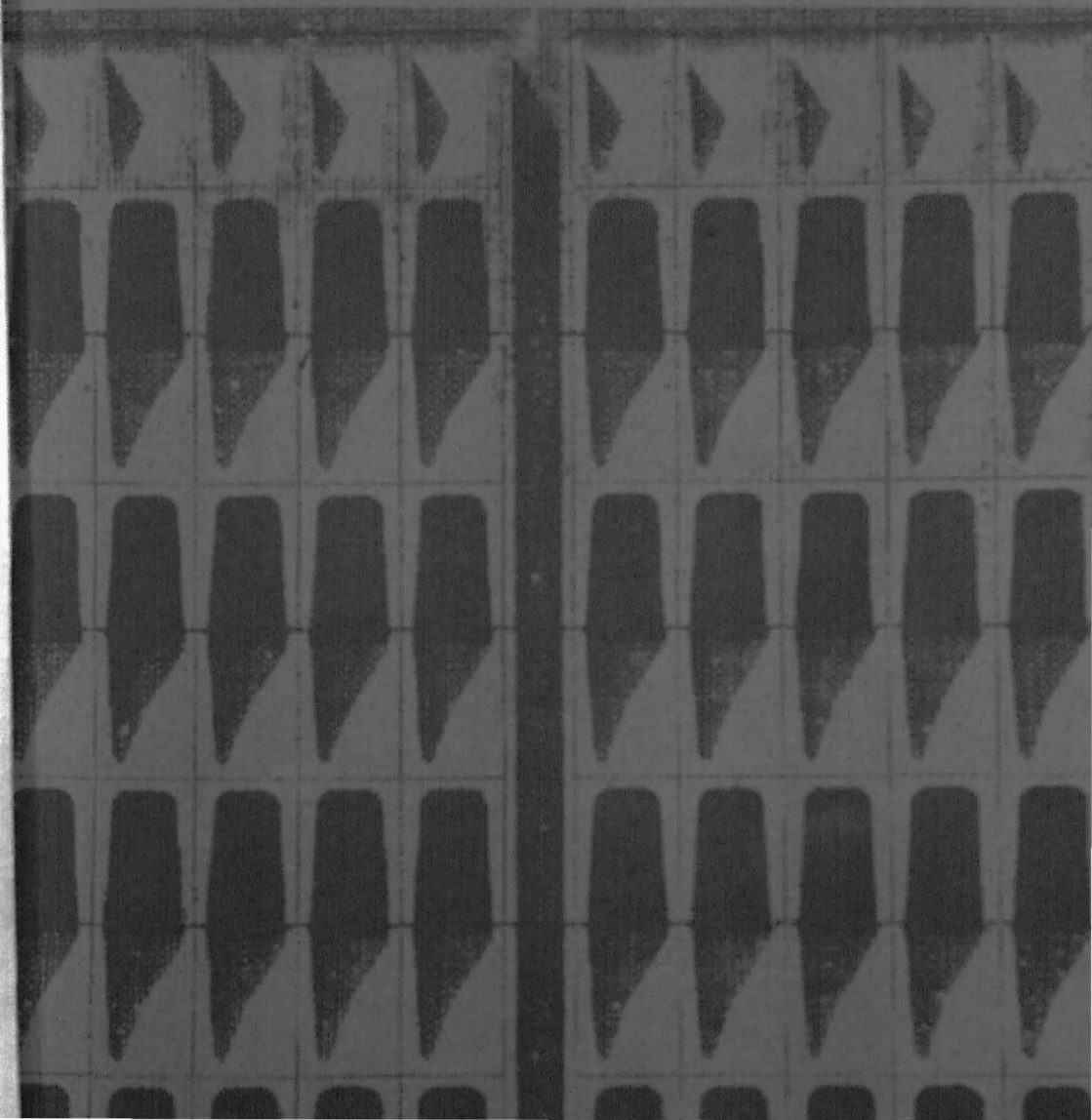
UNIVERSITY OF CALIFORNIA, IRVINE

UCI
1969-1970
GENERAL CATALOGUE



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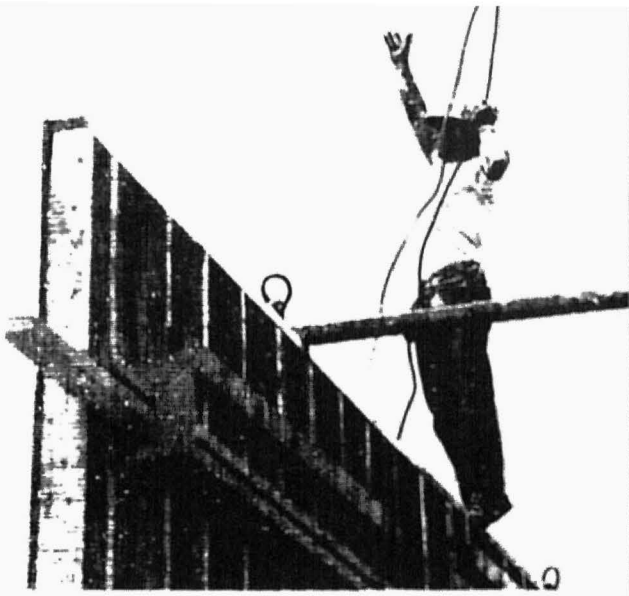


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OCTOBER 1969

UCI
1969-1970
GENERAL CATALOGUE

"The central mission of the University of California is learning. Learning encompasses transfer of knowledge, but not indoctrination; respect for the past, but not idolatry; high concern with academic excellence, but not to the exclusion of the whole person.

"We are committed to providing the most favorable environment for learning, not only in attractive campuses and modern facilities, but more importantly in preserving and encouraging the spirit of free inquiry and dedication to truth which have made the University of California a truly great University."

CHARLES J. HITCH
President of the University

CHANCELLOR'S MESSAGE

The development of educational self-reliance among its students has been an underlying academic philosophy of the Irvine campus from its inception. Much effort and thought have been required from administrators, faculty and students alike to transform this philosophy from the written academic plan to reality, and much more remains to be done. By its nature, involvement is a process which never ceases.

The framework for student involvement was constructed in the very organization of the schools and departments, and the structure continues to evolve. Each successive class of students has and will continue to leave its mark, the wisdom and durability of its effort to be tested by those to come.

The preamble to "A Statement of the Irvine Approach," issued in 1965, prior to the opening of the campus, reads as follows:

"The University of California, Irvine is a university for the modern man. It confronts the prospects of the next century with enthusiasm. It regards the past with respect, but without nostalgia. It is unashamed of modern society; unintimidated by modern problems; stimulated by modern opportunities.

"These sentiments imply a willingness to experiment with program, procedure, organization, and technique. They imply a faculty, a student body, and a state of mind that is not afraid to try. They imply a serious reconsideration of traditional ways, not with the arrogance that we are smarter than everybody else, but with an awareness of our responsibility to use well our special opportunity to start anew. They imply a lack of dogma and a willingness to confess our errors."

Made as an expression of hope and opportunity for a newly established institution, this statement, I believe, continues to reflect the manner and spirit with which the Irvine campus community pursues its educational objectives.

DANIEL G. ALDRICH, JR
Chancellor

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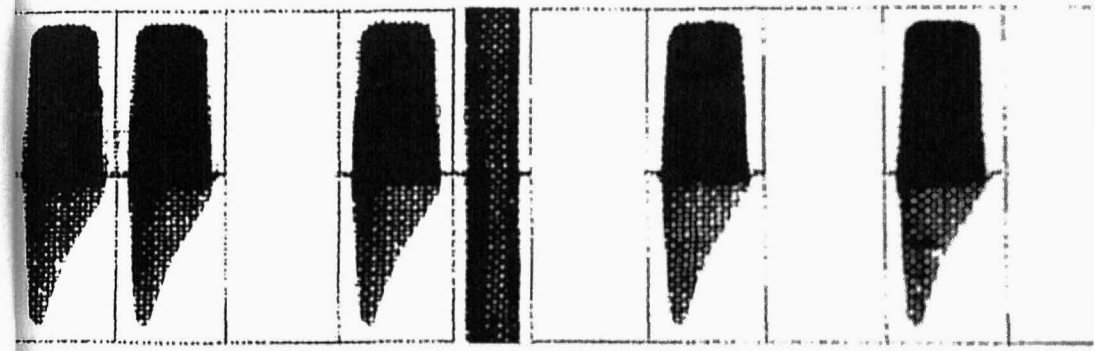


ACADEMIC CALENDAR 1969-70

Fall Quarter 1969

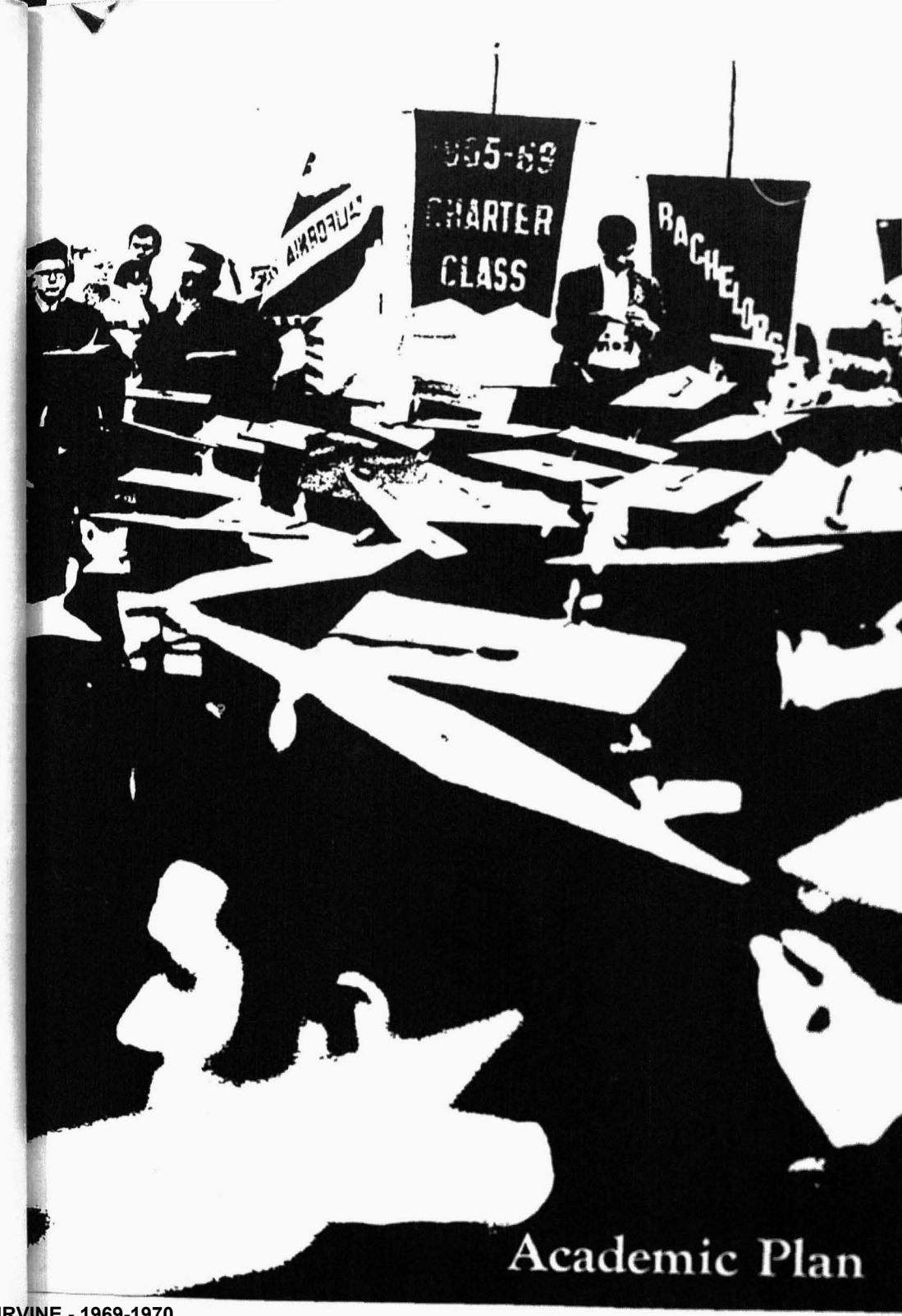
Fall quarter begins	Sept. 29
New student orientation	Sept. 29-Oct. 3
Registration & enrollment for new students	Sept. 29-Oct. 3
Instruction begins	Oct. 6
Thanksgiving Holiday	Nov. 27-28
Instruction ends	Dec. 13
Final examinations	Dec. 15-20
Fall quarter ends	Dec. 20
Christmas Holiday	Dec. 25-26
New Year's Holiday	Jan. 1-2

Winter Quarter 1970

Winter quarter begins	Jan. 5
Registration & enrollment for new students	Jan. 5-7
Instruction begins	Jan. 8
Washington's Birthday Holiday	Feb. 23
Instruction ends	March 16
Final examinations	March 18-March 24
Winter quarter ends	March 24
Spring Holiday	March 27

Spring Quarter 1970

Spring quarter begins	March 31
Registration & enrollment for new students	March 31-April 2
Instruction begins	April 3
Memorial Day Holiday	May 30
Instruction ends	June 8
Final examinations	June 10-June 16
Spring quarter ends	June 16
Commencement	



Academic Plan

Academic Plan

THE ACADEMIC PLAN

ROGER W. RUSSELL
Vice Chancellor—Academic Affairs

The faculty of the University of California, Irvine believes that education is a continuing process, not the simple sum of any particular number of years of formal work, and that a university fulfills its purpose when its students learn how to learn. This is the capability which has greatest lasting value in generalizing from the university environment to the changing conditions which all persons must face throughout their later lives. The faculty recognizes that its own objective of helping students to learn cannot be achieved unless the student understands that the primary responsibility for learning is his own. No one can be forced to learn; effective learning requires motivation intrinsic to the learner.

It follows that the academic program should include only such curricula as can be most effectively offered in a university environment or are necessary to the student's pursuit of a liberal education. Important to the academic concept is recognition that a university provides an environment for learning which goes beyond formal courses; much depends upon a student's own initiative as to how fully he takes advantage of opportunities for what is often called "co-curricular learning." It follows also that academic progress should be thought of not merely, or even necessarily, in terms of courses taken, but in terms of the acquisition of competence and knowledge and the growth of intellectual integrity and creative power. The faculty, therefore, has adopted the principle that credit for many courses can be achieved by means other than the actual taking of the formal course.

Further, by refusing to stipulate a large and complex system of university and college requirements, the faculty has indicated that it envisages many possible avenues by which the student may reach the proper goals. The faculty, in its advisory capacity, will encourage each student to avoid extremes of narrow specialization and superficial generalization, to plan a coherent program with maximum opportunity for independent study, and to use whatever method of instruction and study is most stimulating, efficient, and generally suitable to his subject and to his own abilities.

Degrees Offered

Administration	M.S., Ph.D
American and Comparative Culture	B.A
Anthropology	B.A
Art	M.F.A
Biological Sciences	B.S
Molecular & Cell Biology	M.S., Ph.D
Organismic Biology	M.S., Ph.D
Population & Environmental Biology	M.S., Ph.D
Psychobiology	M.S., Ph.D
Chemistry	B.A., Ph.D
Classics	B.A
Comparative Literature	B.A., M.A., Ph.D
Creative Writing	M.F.A

Dance	B.A., M.F.A.
Drama	B.A., M.F.A.
Economics	B.A.
Education (credential programs)	Secondary-Elementary
Engineering	B.S., M.S., Ph.D.
English	B.A., M.A., Ph.D.
Fine Arts (interdisciplinary)	B.A.
Formal Models	B.A.
French	B.A., M.A., Ph.D.
Geography	B.A.
German	B.A., M.A.
Greek	B.A.
History	B.A., M.A., Ph.D.
Information & Computer Science	B.A., Ph.D.
Latin	B.A.
Linguistics	B.A.
Mathematics	B.A., M.A., Ph.D.
Medicine	M.D.
Music	B.A.
Philosophy	B.A., M.A., Ph.D.
Physics	B.A., M.A., Ph.D.
Political Science	Ph.D.
Program in Language Development	B.A.
Psychology	B.A., Ph.D.
Social Sciences	B.A., M.A., Ph.D.
Sociology	B.A.
Spanish	B.A., M.A., Ph.D.

REQUIREMENTS FOR THE BACCALAUREATE

The faculty will expect each student to demonstrate by course work, by examination, or by other means established by the faculty that he has met the requirements of the Irvine campus, the school, and the departmental or interdepartmental program to which he belongs.

University Requirements

1. English—Every undergraduate must demonstrate an acceptable level of ability in English composition. This requirement may be met 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 550 or higher in the CEEB Achievement Test in English Composition (all entering freshmen must take this test as the Subject A Writing Sample will no longer be given), *or*
   c. Entering the University with credentials showing the completion of an acceptable college-level course in English composition with a grade of C or better.

   Note: Advanced Standing students entering without CEEB scores will be tested by the Subject A office at the beginning of the fall quarter. They should contact the office for information before Orientation Week (telephone 833-6717). Any other students without CEEB scores should contact the office as soon as possible.

Satisfaction of the Subject A requirement is determined by the Office of Admissions. Students not meeting the requirement in one of the ways described above must enroll in the non-credit course in Subject A during their first quarter of residence in the University. A fee of $45 is charged.

2. American History and Institutions
   a. Passage of an examination in the subject, *or*
   b. Presentation of a certificate of completion of the requirement at another California institution.

General Requirements

The breadth requirements of the Irvine campus are designed to avoid extremes of narrow specialization and superficial generalization. You will note that they consist of a certain number of courses covering a variety of fields. The courses so indicated may be taken at the University of California or elsewhere (transfer students see page 190).

1. Course work in three schools outside the major school. The 3-3-3 requirement: Students who complete University Studies 1, 2, and 3 must take three courses in each of three outside schools.

   The 6-3-3 requirement: Other students must take six courses in one outside school and three courses each in two other outside schools.

   (Please note exceptions to the above requirements on page 16 for the School of Engineering.)
2. Credit for 45 courses, earned by examination, by other evaluation, or course work.
3. A grade average of at least C.
4. Credit, earned in residence on the Irvine campus, for the last three quarters of work immediately preceding graduation. An exception to this rule is allowed in the case of students enrolled in the Education Abroad Program, who may be allowed to complete 35 of the last 90 units, including the final 12 units, in residence.

Proficiency in English & Foreign Languages

There are no general requirements in English composition for all students at UCI (though it is required by some schools), but the ability to write well is a basic requirement for all course work. Students who are reasonably competent in the use of English would profit from additional study with the aim of further improving their writing. Students who transfer elsewhere from UCI should have taken English composition, since formal instruction in this subject is a graduation requirement of almost all universities.

There are no general requirements in foreign languages for all students at UCI (though it is required by the School of Humanities and the School of Physical Sciences), but the ability to read one or more foreign languages is a requirement of most graduate schools. Students who transfer elsewhere from UCI should have included a foreign language in their programs, since knowledge of a foreign language equivalent to two years of college level is a requirement for the baccalaureate in almost all colleges of arts, letters, and science, including those of the other campuses of the University of California.

COURSE NUMBERING SYSTEM

Throughout the catalogue, the following course numbering system is used:

1-99	Lower Division
100-199	Upper Division
200-over	Graduate Division

SCHOOL AND DEPARTMENTAL REQUIREMENTS

As soon as he has determined the area of his concentration, and not later than the beginning of the junior year, the student should enter one of the schools of the University, having made certain that he has the background and the preparation necessary to accomplish junior and senior work in that school. Each school specifies graduation requirements in addition to those specified by the University. Prerequisites for work in each school and the school and departmental graduation requirements are listed below:

School of Biological Sciences

Biological Sciences 100A-B-C-D-E-F; one year of college level physics; one year of college level mathematics through differential and integral calculus or calculus-based probability and statistics; one year of college level general chemistry and one year of organic chemistry; and a minimum of three biological sciences satellite courses. The Biological Sciences Core (Biological Sciences 100A-F) is a two-year sequence. No substitutions are permitted.

School of Fine Arts

Art: Plan A is intended for the studio major, and Plan B is intended for the art history major.

Plan A: One year's work in visual fundamentals; one year's work in the history and theory of art; a year's work in history of contemporary art (109N, 129, 130); six junior-senior studio courses; two junior-senior courses in the history and criticism of art in addition to the one year's work in history of contemporary art; three courses in fine arts outside of the departmental major. Studio art majors, except those concentrating in ceramics, are required to take 30A, 30B, 30C, 109N, 129, 130 the first year; 40A, 40B, 40C, and 190 for three consecutive quarters the second year; and 190 for three consecutive quarters the third year. Painting, drawing, and sculpture courses are available as electives for those who wish to do more technical work in those areas.

Plan B: 30A, 30B, 30C; 40A, 40B, 40C; eight junior-senior courses in art history, with at least one course in each of the following areas, Ancient, Medieval, Renaissance, Baroque, and Contemporary; one Special Studies in the History and Criticism of Art in the senior year; three courses in fine arts outside the departmental major. Students intending to do graduate work should study at least one, preferably two languages (French, German, or Italian).

Dance: Plan A is intended for the student whose goal is professional performance. Plan B is intended for the student whose goal is teaching, criticism, or choreography.

Plan A: Four years' studio work in ballet; three years' studio work in freestyle; two years' studio work in jazz; Dance 20A, 20B, 20C; Dance 120A, 120B, 120C; one course in history of dance; one course in dance notation; three courses in choreography; two courses in acting; and participation in dance performances. Dance majors under Plan A must complete Ballet IV, Freestyle III, and Jazz II to graduate.

Plan B: Three years' studio work in ballet; two years' studio work in freestyle; one year's studio work in jazz; Dance 20A, 20B, 20C; Dance 120A, 120B, 120C; three courses in history of dance; three courses in dance notation; one course in dance criticism; three courses in choreography; two courses in acting; and participation in dance performances. Dance majors under Plan B must complete Ballet III, Freestyle II, and Jazz I to graduate.

All transfer students must take placement examinations.

Drama: One year's work in the development of Dramatic art (40A-B-C); one year in acting (30A-B-C); Drama 100A-B-C; eight junior-senior courses; three courses in fine arts outside the departmental major, including two consecutive quarters of dance.

Music: Two year's work in theory: Music 5A-B-C; Music 15A-B-C; one year's work in the history and literature of music; one year's work in counterpoint; one year's work in form and analysis; three junior-senior courses in the history and criticism of music; command of piano; three courses in fine arts outside the departmental major; participation in the chorus, or the orchestra, or in chamber music each year; a senior recital; and a senior examination covering an assigned representative repertory drawn from the total history of music.

At the commencement of the student's freshman year he will be given an entrance examination to determine whether he meets the requirements of the department as stated below. After two years, the faculty will meet as a jury to determine whether the student is making sufficient progress to qualify him as an upper division music major. All transfer students must take placement examinations.

Voice Majors: Recommend at least two years' private study and/or participation in choral or orchestral ensemble and facility at the keyboard. 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.

Woodwinds: 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 his particular instrument.

Brass: Essentially the same requirements as for woodwinds.

Percussion: Mastery of rudimentary drum techniques and a knowledge of the piano comparable to grade three is required.

Strings: Clear tone production, precise intonation with and without vibrato, controlled vibrato, slurred, *detache, loure, 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.

School of Humanities

One of the lower division English sequences: English 5, 10, 15; English 22, 23, 24, or CL 50A-B-C. Competence equivalent to two years of college work in a single foreign language; three courses in history; two courses in philosophy.

American and Comparative Culture

Preparation: During his first two years, each student should ground himself in areas that will lead toward a broadly comparative study of American culture. At the very least, he will take History 50A-B-C, three quarters of literature, and three quarters of introductory work in the School of Social Sciences.

Upper Division Requirements: Competence in visual techniques of cultural analysis as in the study of architecture, art and technology, art history, drama and dance, play or gesture regarded theoretically as revealing ritual, cultural activities; competence in the literature of one other culture, either in the original or translation; four quarters of course work in American literature, at least two of which must deal with literature before 1900; four quarters of course work in American history, at least two of which must deal with the period before 1900; at least four quarters of upper division work in the social sciences; familiarity with the critical, mathematical, computational, analytic, and historiographic tools necessary for pursuit of cross-cultural inquiry; core course in interdisciplinary studies required in junior and senior years (6 quarters).

Classics

Three separate majors, Greek, Latin, and Classics (the latter a combined Greek and Latin major with emphasis in either of the two languages).

Greek: Greek 2A-B-C; Greek 10; eight courses on the Greek 100 level or above, including Greek 102A-B-C; Classics 152.

Latin: Latin 2A-B-C; Latin 10; eight courses on the Latin 100 level or above, including Latin 102A-B-C; Classics 151.

Classics: Greek (or Latin) 2A-B-C; Greek (or Latin) 10; four courses on the Greek (or Latin) 100 level or above; Latin (or Greek) 1A-B-C; Latin (or Greek) 2A-B-C; one course on the Latin (or Greek) 100 level or above.

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, it is highly recommended that he begin the study of a second foreign language before graduation.

The lower division Department sequence required of all students in the School of Humanities: English 5-10-15 *or* English 23-24-25 *or* CL 50A-B-C.

About 12 literature or allied courses in addition, of which ten must be upper division: normally these will include CL 100A, CL 100B, CL 101, either CL 102 or CL 103; suitable upper division course work in the literature of a foreign language; appropriate study in English and American literature; and further study in literature or allied fields as recommended by the advisor. Passing performance in the Bachelor's Examination.

English

English 5, 10, 15; two courses numbered below 100; CL 100A twice; CL 100B once; CL 101; E 102 or CL 102 twice; four courses above 102; one course in a foreign literature where texts are read in the original language. Students electing a writing emphasis will be expected to take perhaps one less literature course but more total courses in the department than the conventional English major. All students will be required to pass the Bachelor's Examination.

French

French 10A-B, 11, 12A-B-C, 110; Linguistics 100; and six upper division courses in literature.

German

Two courses in composition and grammar; one course in phonetics; Comparative Literature 50A-B-C; a minimum of nine courses in literature of which six must be at the junior-senior level; and one course in linguistics.

History

Any two of the Civilization Survey sequences (six courses); History 100 and 101; a minimum of four courses listed under Periods, Themes, and Topics; one course in Comparative History; Senior Project (two-course sequence, choice of subject).

Linguistics

Linguistics 100, 101, 102, 103, 104, 105; three courses in a major foreign language beyond 2C or the equivalent: 10A-B, 11; three courses in a non-Indo-European language; two courses in elementary Latin or Greek (unless one of these is the major language); one or two courses in the history of English or the major foreign language.

Philosophy

History of Philosophy 20A-B-C and six junior-senior courses including metaphysics and epistemology.

Spanish

Spanish 10A-B, 11, 12A-B-C, 110; six upper division courses in literature, and Linguistics 100.

School of Physical Sciences

Whereas there is no uniform foreign language requirement that applies to all students in the School of Physical Sciences, individual departments (cf. below) do make specifications in this direction. The ability to express ideas in written English with clarity and precision is regarded as an essential degree requirement.

Chemistry

One year of general chemistry, Chemistry 1 or 11 or equivalent; one year of organic chemistry, Chemistry 51 or equivalent; three one-quarter courses in quantitative chemistry, Chemistry 71, Chemistry 151, and Chemistry 152, or equivalent; one year of physical chemistry, Chemistry 131; one quarter of inorganic chemistry, Chemistry 215; two courses in chemistry elected from those numbered 160-253 of which Chemistry 180 may not be counted more than once; in addition, twelve courses to be chosen from the offerings in mathematics, physics, and biological sciences including: (a) at least one year of calculus, and (b) at least one year of college-level physics for which calculus is either a prerequisite or corequisite (neither Physics 3 nor Information and Computer Science 1 meets the above requirements; the six courses not specified under (a) and (b) may be taken on a Pass/Not Pass basis subject to the usual restrictions on Pass/Not Pass enrollment); reading competence in one of the foreign languages—French, German, Japanese, or Russian—to be demonstrated by: (a) completion of four years of high school work in the language, (b) satisfactory completion of two years of college work in the language, or (c) passing a technical reading examination administered by the University. (Satisfactory completion of college work is established by a grade of C or better in the final quarter or semester, or by a grade of Passed if work is taken on a Passed/

Not Passed basis, or by corresponding credit earned via the Credit by Examination option.)

Mathematics

Two years (six courses) of calculus, plus nine upper division courses in mathematics including three of either Mathematics 120A-B-C or 140A-B-C and at least one of the other. (The 120-140 ruling affects only those students who enter the junior year in 1968-69 or after.)

Reading competence in one of the foreign languages (French, German, or Russian): This competence can be established by (a) the satisfactory completion of four years of high school work in the language, or (b) the satisfactory completion of two years of college work in the language, or (c) by passing a technical reading examination administered in one of the languages by the Department of Mathematics. Satisfactory completion of high school work is demonstrated by a grade of C or better in the final quarter or semester. Satisfactory completion of college work is demonstrated by a grade of C or better in the final quarter or semester, or by a grade of Passed if work is taken on a Passed/Not Passed basis, or by corresponding credits earned via the Credit by Examination option.

Physics

Physics 5A, 5B, 5C, 5D, 5E, and eight courses numbered between 110 and 190, including two quarters of advanced laboratory (151-153); Mathematics 2A-B-C, 3A-B-C, and three quarters chosen from among 142, 143, and 144.

School of Social Sciences

Requirements for the degree in social science are stated generally in terms of knowledge possessed rather than courses taken. In planning his program, however, the student may find it useful to think in terms of five clusters of work:

Introductory work: Social Science 1 and two other one-digit courses in social science.

Advanced work: Six upper division courses in the School of Social Sciences.

Senior project: A three-course educational program during the senior year, as approved by the student's advisor.

Quantitative methods: Six courses in mathematics (Mathematics 5A, 5B, 5C, 6A, 6B, 6C; or 2A, 2B, 2C, 3A, 3B, 3C); one course in computer science (Information and Computer Science 1); two courses in additional mathematics, statistics, or mathematical social science.

Linguistics: Linguistics 100, 103, 104, 105. (Programs in either Psycholinguistics, Sociolinguistics, or Anthropological Linguistics are worked out in cooperation with an advisor.)

A student earns a degree within one of the programs in the School by satisfying these requirements within constraints specified by the program and by satisfying any additional requirements imposed by the program. A student who has qualified for a degree in social science may receive a degree in one of the disciplines (e.g., anthropology, economics, geography, political science, psychology, sociology) if he, in addition, passes a general examination (normally the Graduate Record Examination) in the discipline.

School of Engineering

The faculty expects each undergraduate student to meet the requirements of the University, and of the School of Engineering as follows:

Credit for 45 courses including the following:

COURSES	ENGINEERING (ELECTRICAL)*	ENGINEERING (CIVIL & ENVIRONMENTAL)
ENGINEERING	*Engr.* 100AB, 101AB, 103, 104ABC	
	Engr. 102 plus 6 electives	7 electives
MATHEMATICS	9 courses	
PHYSICS CHEMISTRY BIOLOGY	8 courses in two sciences	8 courses
		3 courses
HUMANITIES, FINE ARTS, SOCIAL SCIENCES	6 courses from one School, 3 in another	6 courses from one School
COMPUTER SCIENCE	1 course	
FREE ELECTIVES	3 courses	

* Students who began their collegiate work in the University or in another college before 1968 should consult the School of Engineering regarding an alternative set of graduation requirements.

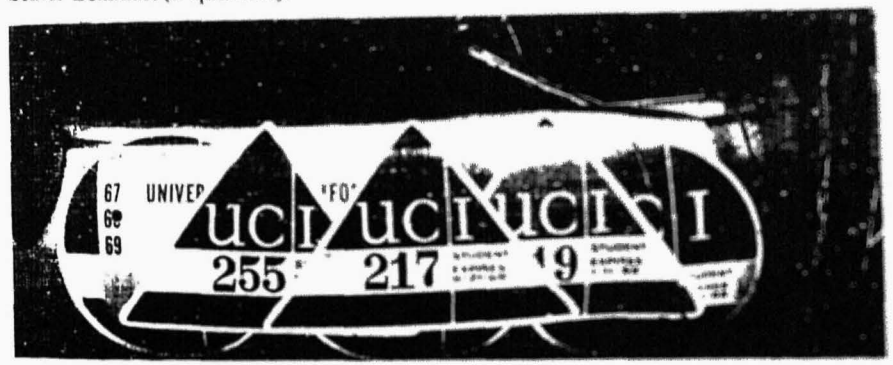
Department of Information and Computer Science

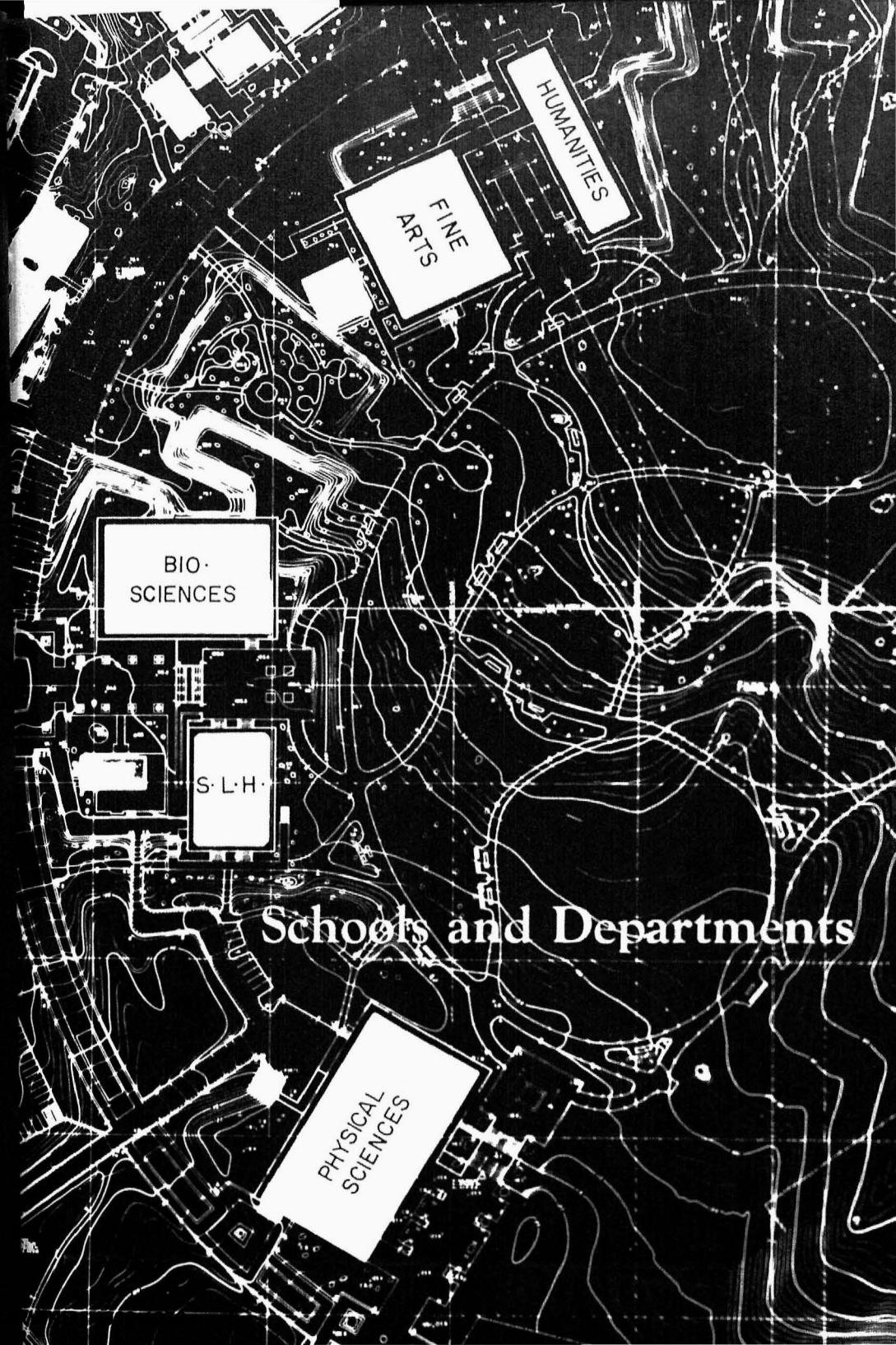
Mathematics: Calculus (3 quarters); linear algebra (1 quarter); introduction to discrete structures (1 quarter); numerical calculus (1 quarter); probability and statistics or statistical methods, or algebra (3 quarters)

Introduction to Programming: Introduction to digital computation (1 quarter); computers and programming (1 quarter); information structures (1 quarter)

Advanced Courses: Programming languages and systems (2 quarters); computer organization (2 quarters); formal models in information and computer science (2 quarters).

Senior Seminar: (3 quarters).





Schools and Departments

SCHOOL OF BIOLOGICAL SCIENCES

JAMES L. MCGAUGH
Dean

The School of Biological Sciences reflects the new concepts of biology in both its curriculum and its research program. The faculty, the methods of teaching, the content of courses, and the facilities are dedicated to providing each student with the opportunity to avail himself of the ever-increasing knowledge of the facts and principles of biology. At both the graduate and undergraduate levels we maintain continuing interaction between classroom education and research, between departments and individuals. The curriculum is designed to meet the present and future needs not only of the biology major but also of students in other disciplines. It is designed for the professional biologists as well as for those aspiring to other related professions such as agriculture and medicine, and for those desiring a continuing education. In keeping with the responsibilities of the University in research, the School encourages rigorous research programs. We strongly believe that excellence in research endeavors is essential for effective teaching programs. In addition to teaching and research, the School takes seriously its additional objective to engage in public service in the spirit of the Land Grant mandate.

The undergraduate courses in the biological sciences are presented as a continuum in a central Core program, surrounded by satellite courses for those undergraduates with specialized interests. The benefits of both unity and diversity are realized by having the solidity of the undergraduate Core program and the diversity of the departmental specializations at the upper division and graduate level.

The major in biological sciences should understand the tremendous impact biology now exerts upon matters of public policy and society as well as the importance of society's reaction to these discoveries. Consequently, we expect biological sciences majors to avail themselves of the broad opportunities allowed by the curriculum to study in other schools of the University. We hope also that students in other disciplines realize that a knowledge of the basic principles of the life sciences is necessary for a proper understanding of the world in which they live. The impact of the biological sciences upon human affairs during the coming years is certain to be very great. It is important to the future welfare of mankind that educated men and women appreciate the contributions of the biological sciences to man's intellectual development, material progress, and ethical and aesthetic senses.

More detailed information, including course descriptions, is offered in separate publications, "A Guide to the Biological Sciences" and "Graduate Programs in the Biological Sciences," which may be obtained from the School of Biological Sciences.

Undergraduate Programs

At the undergraduate level the biological sciences should be viewed as an integrated area of study. The undergraduate program at UCI is designed to provide students with a solid overview of unifying concepts of modern biology. The School offers an integrated Core of courses for all biology students; one which provides the essential background for subsequent graduate specialization in many areas, including the biological sciences, teaching, the health sciences, agriculture, forestry, fisheries, and other applied fields. The introductory courses are designed to make the

biological sciences meaningful and interesting to students whose majors are in other disciplines.

Biological sciences majors should begin as soon as possible to fulfill their requirements in the physical sciences and mathematics.

In addition to the introductory biological sciences courses and the Core curriculum, advanced specialized courses (on the junior-senior level) are offered in the School of Biological Sciences.

The curriculum of the School, like its subject matter, is continually evolving.

Honors Program

At the end of each quarter a Dean's List is posted on the Biological Sciences bulletin board of all of our students who have made a GPA of 3.5 or better during the preceding quarter.

The Biological Sciences Scholastic Honor Society is composed of students who maintain an overall Grade Point Average of 3.5 or better while carrying a minimum of three academic courses, taken on a grade basis, for three or more quarters. Students are elected to provisional membership. Those who maintain this high academic achievement until graduation will have their names inscribed on a permanent plaque in the Biological Sciences Building.

As part of the Honors Program the School offers an invitational Honors Course (Biological Sciences 192H—Honors Seminar in General Biology). See description on page 32. Any eligible junior or senior interested in the Honors Program may be considered by submitting his name to the Biological Sciences Office of Student Affairs. The contents of this course may vary from year to year.

All honors students majoring in the biological sciences are eligible to enroll in other honors or special courses (197H, 198H, or 199), by invitation or consent of instructor.

Graduation with Honors in the Biological Sciences may be recommended for those who maintain their standing as honor students throughout their last two years and satisfactorily complete honors course 198H.

Pre-Professional Training

A student who plans to enter a school of dentistry, medicine, nursing, veterinary science, etc., may receive his required pre-professional training on the Irvine campus. This pre-professional training may be accomplished by (a) completing the professional major (i.e., the Core curriculum) in biological sciences, or (b) majoring in any school or department, but fulfilling concurrently the specific course requirements of the dental, medical, nursing, or veterinary school he expects to attend. A few schools request specific additional requirements (e.g., English, foreign language, physical chemistry, etc.); *a student should, therefore, check early with the professional school he seeks to enter.* Some information in these fields is available in the Biological Sciences Office of Student Affairs.

More than 90 percent of the students admitted to medical schools in the United States have attained the B.A. or B.S. degree, and a large percentage of those admitted to dental schools have had three or more years of undergraduate work—this despite the fact that technically it is possible under the regulations of the American Medical Association and the American Dental Association for a school to admit students who have had as few as two years premedical or predental training. Leaders in dental, medical, and veterinary education urge prospective students to arrange their programs so that they will obtain a liberal education, since the humanities and social sciences are not offered by the professional schools. They, therefore, recommend that students preparing to seek admission to dental or medical schools plan to obtain a bachelor's degree. Rather than require their students to have taken specific premedical courses, many dental and medical schools now prefer that their students come to them having the type of basic training in the biological sciences (with prerequisites in physical sciences, social sciences, and humanities) offered at Irvine.

Students planning to become teachers can qualify at Irvine for the Standard Teaching Credentials with a specialization in Elementary Teaching, with a specialization in Secondary Teaching, or for Junior College Teaching. A fifth year of college work taken in the Graduate School is required for any teaching credential. The graduation requirements at Irvine are such that a student seeking a Standard Credential might deviate from the program for a biological sciences major seeking only a B.S. by the inclusion of one or two courses in Education during the junior and senior years.

Transfer Students

Students who are planning to transfer to UCI from other accredited institutions are advised to elect the broadly-based introductory biological courses and the physical sciences prerequisites, and to work toward fulfilling their breadth requirements by taking courses in two out of the following three areas: social sciences, humanities, and fine arts.

Advisors and Advising System

The Biological Sciences Student Affairs Office coordinates the advising program, which is divided into two areas, program checking and career planning. The former is handled in the Student Affairs Office and the latter by individual faculty members. An advisor is assigned to each student when he enters the School. Advisors are happy to discuss programs, goals, ambitions, and problems with their advisees. If a student's interests change, or if he wishes to change his advisor for any reason, he should not be hesitant about making this step. It can be arranged very simply by making a request for a change in the Biological Sciences Student Affairs Office.

Examinations

Credit by Examination— An enrolled student in good standing may obtain credit for courses by taking special examinations at stated intervals. Lists of courses offered for credit by examination are available from the dean of each school.

Courses in Other Schools at UCI

In realization of the tremendous impact biology is having upon matters of public policy and society in general and the importance of society's reaction to the discoveries being made in the biological sciences, biological sciences students are encouraged to study the social sciences, humanities, and fine arts. Therefore, we strongly recommend courses in philosophy (Philosophy 10—Elements of Logic and Philosophy 15—Ethics), and the history of science (History of Scientific Thought and Culture 90A-B).

While English is not a required subject at Irvine, the ability to write reports and to read with comprehension is essential for successful work in biology. Students who lack these skills are strongly advised to take formal instruction in writing.

A foreign language is not required for graduation. However, the ability to read the literature of science in French, German, and Russian is desirable, and for students intending to do graduate work, mastery of two of these languages in most cases is essential for advanced graduate work.

Biology Club

All biological sciences majors are encouraged to affiliate with this club, and all Irvine students who are interested in biology are invited to become members or to attend functions of the club. The Biology Club is responsible for coordinating many of the curricular and extracurricular activities of students in biology.

Dean's Council

The Dean's Council is an autonomous student group and exists as a liaison between the administration, faculty, and students. Some of its activities include the initiation of courses and course and faculty evaluations.

Graduate Programs

Graduate programs are administered by the departments for the School of Biological Sciences. Applications for admission for graduate study are reviewed both by the Graduate Division and by the department to which the student has applied. Applications are evaluated on the basis of grades, letters of recommendation, Graduate Record Examination scores, and other qualifications of the applicant.

Programs leading to the degrees of Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) in the Biological Sciences are offered. Students are expected to make normal progress towards a degree. This means attainment of the Master's Degree at the end of two years and attainment of the Ph.D. by the end of four or, at most, five years. However, a Master's Degree is not a prerequisite for the Ph.D. Degree. In addition, a "B" average must be maintained at all times.

While most training takes place within any one of the four departments, full facilities and curricular offerings are available to all graduate students in the biological sciences; interdisciplinary study and research are encouraged.

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

During the first year, students participate in the biological sciences graduate colloquium, which is designed to familiarize students with the broad aspects of the biological sciences as they are represented in the School. In addition to their own research and the seminars and colloquia required by the individual departments, all graduate students studying for advanced degrees in the School of Biological Sciences receive guided teaching experience. Normally, during the early years of graduate training, students will serve as teacher apprentices working under the direction of advanced teaching assistants and faculty. Advanced graduate students work closely with faculty in the planning and execution of the teaching program. The amount and exact nature of the teaching experience varies from department to department within the School, according to the teaching programs of each department.

Financial assistance is considered an important aspect of graduate training, relieving the need to seek outside employment and permitting maximum concentration of effort toward graduate study. Support is available through teaching and research assistantships, fellowships, and traineeships. The level of support in the 1969-70 year ranges between $2,400 and $3,500.

Graduate education is a highly personal and individual matter. Graduate students are encouraged to pursue their own individual interests and creative abilities. Thus it is not possible to prescribe a particular course schedule or time sequence of events which will meet the needs or interests of all students. The most important requirement for the attainment of the Ph.D. degree is for a student to develop the ability to make original contributions to the body of scientific knowledge.

Although the graduate programs vary in detail within the departments of the School, the outline given here will serve as a general guideline.

Master of Science in the Biological Sciences

The language requirement for the M.S. degree is a reading knowledge of one foreign language, usually French, German, or Russian. On the recommendation of the student's advisor, with approval of the departmental chairman, other languages or training in other special skills may be substituted.

Plan I: Thesis Plan

This plan requires the student to complete 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 five of these courses must be in the 200-series in the student's specialization. This plan is terminated with a comprehensive final examination in the major subject; its kind and conduct to be determined by the department concerned.

Doctor of Philosophy in the Biological Sciences

Students who are planning to receive a Ph.D. degree are normally encouraged to do so without first attaining the M.S. The language requirement will normally be satisfied by examining the student with regard to his reading proficiency in two foreign languages. German, French, or Russian are acceptable in meeting language requirements. On the recommendation of the student's advisor, with approval of the departmental chairman, other languages or training in other special skills may be substituted for one of the language requirements.

First Level of Competence

The graduate student attains the First Level of Competence by completing the three-quarter colloquium sequence during his first year of graduate residence. Some departments require oral or written examinations in addition to the colloquium.

Second Level of Competence

The Second Level of Competence 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.

This examination completed, the student is advanced to candidacy, and he may formally begin his thesis research. A thesis covering this research is submitted and defended during the final year of graduate study. (For specific graduate programs, contact the graduate advisors of the various departments.)

Research Resources

The Museum of Systematic Biology, administered by the School of Biological Sciences and under the direct supervision of the Department of Population and Environmental Biology, is a teaching and research facility for the campus. It was

opened in March 1966, and presently contains material of local populations of fishes, plants, insects, and mammals. Several important collections, notably the Sprague conchological collection, are housed in the Museum.

A. S. BOUGHEY —*Director*
GORDON A. MARSH —*Curator*

The Irvine Aboretum is administered by the School of Biological Sciences. Plans for this botanic garden facility envisage the treatment of the whole campus under scientific management. Records will be kept of the location of all material planted on the campus, and particular areas will be reserved for experimental and teaching work. A number of plant houses and other controlled environment facilities will be constructed; several are already in operation.

A. S. BOUGHEY —*Director*
JOSEPH ARDITTI —*Curator*
PETER R. ATSATT —*Curator*

The School of Biological Sciences is planning to develop interdepartmental research and teaching facilities for marine research, both on the main campus and at one or more seaside locations in the area. The coordination of these research and teaching activities is handled through the **Marine Biology Coordinating Committee.** In addition, a marine biological laboratory has been constructed on Santa Catalina Island as a joint universities' project under the administrative direction of the Allan Hancock Foundation of the University of Southern California.

HOWARD M. LENHOFF —*Coordinator*

The Center for Pathobiology is dedicated to the advancement of the understanding of disease from the standpoint of the basic sciences, especially the biological sciences. It serves as an informational and research unit, as well as a center for advanced study of all manner of disease in all types of animal and plant life. The Center aspires to bring together "critical masses" of resources, specimen materials, literature, AV/TV materials and computer and information retrieval facilities to enable the enhancement of teaching, research, and professional and public service in the biology of disease. It is situated in the School of Biological Sciences, with departmental affiliations and interdisciplinary opportunities fully available.

EDWARD A. STEINHAUS —*Director*

School of Biological Sciences Faculty

JOSEPH ARDITTI, Ph.D. University of Southern California; *Assistant Professor of Biological Sciences*

PETER R. ATSATT, Ph.D. University of California, Los Angeles; *Assistant Professor of Biological Sciences*

ERNEST A. BALL, Ph.D. University of California, Berkeley; *Professor of Biological Sciences*

GILBERT W. BANE, Ph.D. Cornell University; *Assistant Professor of Biological Sciences*

ARTHUR S. BOUGHEY, Ph.D. Edinburgh University; *Professor of Biological Sciences, and Director of the Museum of Systematic Biology and The Irvine Arboretum*

RICHARD D. CAMPBELL, Ph.D. The Rockefeller University; *Assistant Professor of Biological Sciences*

CARL COTMAN, Ph.D. Indiana University; *Assistant Professor of Psychobiology*

PETER S. DIXON, Ph.D. University of Manchester; *Chairman of the Department of Population and Environmental Biology and Professor of Biological Sciences*

RALPH W. GERARD, M.D. Rush Medical, Ph.D. University of Chicago, D.Sc., LL.D., Litt.D.; *Professor of Biological Sciences and Advisor to the Vice Chancellor—Academic Affairs*

*ROLAND GIOLI, Ph.D. University of California, Berkeley; *Assistant Professor of Psychobiology*

*ALBERT GLOBUS, M.D. Northwestern University; *Assistant Professor of Psychobiology*

GALE A. GRANGER, Ph.D. University of Washington; *Assistant Professor of Biochemistry*

PATRICK L. HEALEY, Ph.D. University of California, Berkeley; *Assistant Professor of Biological Sciences*

KEITH E. JUSTICE, Ph.D. University of Arizona; *Associate Professor of Biological Sciences and Associate Dean of the Graduate Division*

HAROLD KOOPOWITZ, Ph.D. University of California, Los Angeles; *Assistant Professor of Biological Sciences*

*STUART M. KRASSNER, Sc.D. The Johns Hopkins University; *Assistant Professor of Biological Sciences*

HOWARD M. LENHOFF, Ph.D. The Johns Hopkins University; *Associate Dean of the School, Professor of Biological Sciences, and Coordinator of Marine Biology*

GARY STEPHEN LYNCH, Ph.D. Princeton University; *Assistant Professor of Psychobiology*

RICHARD E. MACMILLEN, Ph.D. University of California, Los Angeles; *Associate Professor of Biological Sciences*

*JAMES L. MCGAUGH, Ph.D. University of California, Berkeley; *Professor of Psychobiology*

*CALVIN S. MCLAUGHLIN, Ph.D. Massachusetts Institute of Technology; *Associate Professor of Biochemistry*

*HARRIS S. MOYED, Ph.D. University of Pennsylvania; *Professor of Microbiology*

PHILIP W. RUNDEL, Ph.D. Duke University; *Acting Assistant Professor of Biological Sciences*

ROGER W. RUSSELL, Ph.D. University of Virginia; *Professor of Psychobiology and Vice Chancellor—Academic Affairs*

HOWARD A. SCHNEIDERMAN, Ph.D. Harvard University; *Chairman of Department of Organismic Biology and Professor of Biological Sciences*

*WENDELL M. STANLEY, JR., Ph.D. University of Wisconsin; *Assistant Professor of Biochemistry*

EDWARD A. STEINHAUS, Ph.D. Ohio State University; Sc.D.; *Professor of Pathobiology, Director of the Center for Pathobiology and founding Dean of the School*

GROVER C. STEPHENS, Ph.D. Northwestern University; *Professor of Biological Sciences*

IRWIN TESSMAN, Ph.D. Yale University; *Professor of Genetics*

KRISHNA K. TEWARI, Ph.D. Lucknow University; *Associate Professor of Biochemistry*

RICHARD F. THOMPSON, Ph.D. University of Wisconsin; *Professor of Psychobiology*

MARCEL VERZEANO, M.D. University of Pisa Medical School; *Professor of Psychobiology*

ROBERT A. WARNER, Ph.D. New York University; *Chairman of Department of Molecular and Cell Biology and Professor of Biochemistry*

NORMAN M. WEINBERGER, Ph.D. Western Reserve University; *Associate Professor of Psychobiology*

RICHARD E. WHALEN, Ph.D. Yale University; *Chairman of Department of Psychobiology and Associate Professor of Psychobiology*

*CLIFFORD A. WOOLFOLK, Ph.D. University of Washington, *Associate Professor of Microbiology*

*DANIEL L. WULFF, Ph.D. California Institute of Technology; *Associate Professor of Biochemistry*

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* Joint appointments with UCI—California College of Medicine

Undergraduate Courses in Biological Sciences

Introductory General Biology Lecture and laboratory. STAFF

This three-quarter course is taken by nonmajors (freshmen through seniors). The purpose is to introduce students to the general framework of knowledge of biology and to its underlying philosophy, with special attention to the impact of biology on human affairs. Among the subject matter to be included will be the diversity of life; the anatomy and physiology of selected organisms; genetics and development; biological regulation; evolution; ecosystems.

Biological Sciences 1A (1) fall
Prerequisite: None.

Biological Sciences 1B (1) winter
Prerequisite: Biological Sciences 1A.

Biological Sciences 1C (1) spring
Prerequisite: Biological Sciences 1B.

Undergraduate Core Curriculum—Two-Year Sequence

(Required of all Biological Sciences Majors)

Three 1-hour lectures and one 3-hour lab per week. MR. HEALEY AND STAFF

The Core is organized to develop the major concepts of biology at the level expected of every graduating student in biological sciences, regardless of his area of specialization. Undergraduate specialization is effected through satellite studies.

Biological Sciences 100A (1) fall
Prerequisite: Concurrent enrollment in, or completion of, Chemistry 1A. The student should also be taking or planning to take the required math and physics courses.

Biological Sciences 100B (1) winter
Prerequisite: Biological Sciences 100A.

Biological Sciences 100C (1) spring
Prerequisite: Biological Sciences 100B.

Biological Sciences 100D (1) fall
Prerequisite: Biological Sciences 100C.

Biological Sciences 100E (1) winter
Prerequisite: Biological Sciences 100D.

Biological Sciences 100F (1) spring
Prerequisite: Biological Sciences 100E.

Biological Sciences Satellite Courses

40 Population: The Vital Revolution (1) fall, winter, spring STAFF

Lecture. Interdisciplinary in nature. Crucial aspects of the population explosion, pollution, food production and distribution, birth control, vital ecological systems, and public policy. (Organized by the Dean's Council.)

50 Human Ecology (1) winter MR. BOUGHEY

Multi-media course. Consideration of such natural features of human population dynamics as birth rate, death rate, carrying capacity, intrinsic rate of increase. Encompasses not only the effect of human populations on their environment, but also of the environment on human populations. Prerequisite: None. Open to majors and nonmajors.

120 Microbial Genetics (1) spring MR. WULFF

A consideration of genetics at the molecular and cellular level. Particular emphasis will be placed on microbial genetics as model molecular systems. Prerequisite: Concurrent enrollment in the Biological Sciences 100 series or consent of instructor.

121 Immunology (1) winter of odd years MR. GRANGER

The following general topics will be considered: (a) host immune response with regard to bacterial viral, tumors, and transplantation immunity, (b) the structure and function of antibody molecules, (c) important current theories; i.e., antibody formation, oncogenesis, tolerance, etc. Prerequisite: Biological Sciences 1A or equivalent and a minimum of one quarter of chemistry.

122 Microbial Physiology (1) winter of odd years MR. WOOLFOLK

Lectures will cover biochemical taxonomy and cytology of microorganisms, comparative metabolism, regulatory mechanisms in metabolism. Prerequisite: Organic chemistry and participation in Core program.

130 Invertebrate Zoology (1) winter MR. KOOPOWITZ

Lecture and laboratory. Structure and comparative biology of invertebrates. The basic morphological organization of the phyla will be discussed and illustrated by study of living marine material where practical. Prerequisite: One year elementary biology, zoology, or botany; upper division or graduate registration and consent of instructor.

131 Comparative Animal Physiology (1) fall of odd years MR. STEPHENS

Lecture and laboratory. A comparative approach to the analysis of systems mediating homeostasis and behavior in the animal kingdom. Prerequisite: One year biology and organic chemistry, upper division or graduate registration, and consent of instructor.

132 Comparative Morphology of Vascular Plants (1) spring MR. BALL

Lecture and laboratory. Comparative structure, evolution, and general biology of major groups of vascular plants. Laboratory work will be supplemented by field trips to different habitats. Prerequisite: One quarter botany or biology; upper division or graduate registration and consent of instructor.

133 Symbiosis (1) spring MR. KRASSNER

Lecture and laboratory. A general laboratory and lecture introduction to the variety of symbiotic relations ranging from parasitism to mutualism. Prerequisite: One year biology (one quarter organic chemistry desirable); upper division or graduate registration and consent of instructor.

134 Cytology (1) winter — MR. CAMPBELL AND MR. HEALEY
Lecture. Ultrastructure, functions, possible origins and modes of development of cellular organelles. Current literature will be stressed. Prerequisite: Biological Sciences 100D.

135A Introduction to Plant Physiology(1) winter — MR. ARDITTI
Lecture and laboratory. Fundamental processes of plant functions. Metabolism of water, nitrogen, minerals, carbohydrates, amino acids, proteins, lipids, and vitamins. The pigments, reactions, and factors affecting photosynthesis. Prerequisite: Biological Sciences 100A-B-C or consent of instructor.

135B Introduction to Plant Physiology (1) spring — MR. ARDITTI
Lecture and laboratory. Fundamental processes of plant functions. Growth, development, and flowering as related to and affected by plant hormones and environmental factors. Flower and fruit physiology. Prerequisite: Biological Sciences 135A or consent of instructor.

136 Developmental Biology (1) fall — MR. CAMPBELL AND MR. HEALEY
Lecture and demonstrations. Growth and patterning of plants and animals, with emphasis on modern approaches to studying organogenesis and histogenesis. Prerequisite: Biological Sciences 100C.

137 Morphology of Non-vascular Plants (1) winter — MR. DIXON
Lecture and laboratory. A comparative survey of the structure of algae, fungi, and bryophytes. In addition, the course will provide an introduction to morphogenesis in lower plants, with particular emphasis on such concepts as polarity and coordinated development through control of cell division and cell enlargement. Prerequisite: Biological Sciences 100C or consent of instructor.

138 Invertebrate Pathology (1) winter of odd years to begin in 1971 — MR. STEINHAUS
Lecture and laboratory. Principles of invertebrate pathology and invertebrate microbiology. Infectious and noninfectious diseases of insects and other invertebrates. Included will be a consideration of symptomatology, morphopathology, physiopathology, epizootiology, and diagnosis. Contributions of invertebrate pathology to medicine, agriculture, marine science, and biology generally will be highlighted. Prerequisite: At least one year of biological sciences and/or microbiology.

141 Field Biology (1) spring — MR. ATSATT
Lecture, laboratory, field. A survey of selected plant families, illustrating the role of floral biology (sex in plants) and agencies of pollination (wind, water, insects, birds, and bats) in angiosperm evolution. Each student will choose and complete a short research problem, normally one that is complementary to the topics given in lecture. Prerequisite: One year biological sciences, upper division registration, and consent of instructor.

142 Vertebrate Biology: Phylogeny and Morphology (1) winter — MR. MACMILLEN
Lecture and laboratory. Survey of the phylogeny of vertebrates from their origin to their culmination in extant forms. Particular emphasis will be on the evolution and structure of the vertebrate skeletal system, since it is this system which best represents fossilized, extinct forms, and hence which best reflects in modern forms affinities and phyletic levels. Prerequisite: Biological Sciences 100A-B-C or equivalent.

143A-B Sec. 1 Marine Ecology Lecture (½-½) fall of even years, winter of odd years — MR. BANE
Physical, chemical, and biological factors characterizing the marine environment; studies of the interaction of variables at the individual, population, and community levels; factors relating to population cycles, the transfer of energy, photosynthesis, field methods of collecting, preserving, and identifying marine organisms. Prerequisite: An elementary knowledge of the biological sciences. Both A and B must be taken to receive credit. No PNP permitted. 143A-B Sec. 1 may be taken without Sec. 2, the lab portion of the course.

143A-B Sec. 2 Marine Ecology Laboratory (½-½) fall of even years, winter of odd years — MR. BANE
Prerequisite: Concurrent enrollment in 143A-B Sec. 1. Both A and B must be taken to receive credit. No PNP permitted.

144A-B Ichthyology (1-1) fall of odd years, winter of even years — MR. BANE
Lecture, laboratory, field. Taxonomy, morphology, and identification of fishes; a study of the systematics of fishes from ostracoderms to osteichthyes; ecology, biology, and literature of fishes. Prerequisite: Registration for upper division work or graduate studies and consent of instructor. Both courses must be taken to receive credit. No PNP permitted.

145A Evolutionary Processes (1) fall — MR. JUSTICE
Lecture. Of interest to both the biology major and the nonmajor with a basic knowledge of biology. Although the process of organic evolution is the central theme of the course, other evolutionary topics such as the history of evolutionary thought, stellar evolution, chemical evolution, the origin of life, and man-made evolutionary systems are also considered. Topics in organic evolution will emphasize micro-evolutionary processes within populations. Prerequisite: Elementary knowledge of the biological sciences.

145B Evolutionary Processes (1) winter — MR. ATSATT
Lecture. A survey of genetic systems and mechanisms of evolution in haploid, diploid, and polyploid organisms; environmental effects of gene expression, hybridization and speciation, co-evolution. Prerequisite: 145A or consent of instructor.

149 Population Ecology (1) fall — MR. BOUGHEY
Lecture, laboratory, field. Illustrates some modern concepts of population ecology by reference to local terrestrial animal and plant communities. Each student will select a limited research problem within this area. Prerequisite: Biological Sciences 100A-B-C or equivalent courses and consent of instructor.

150 Introduction to Psychobiology (1) winter — STAFF
Lecture. An introduction to the biological bases of behavior, including an analysis of the nervous system, and problems of instinct, learning, memory, motivation, and arousal. Prerequisite: Relevant background, introductory psychology or biology. This course may not be taken by biological sciences majors.

151 Undergraduate Seminar in Psychobiology (1) spring — STAFF
A consideration of selected current research problems. Students will prepare and present papers. Prerequisite: Biological Sciences 100B or any psychobiology satellite course, upper division standing, and consent of instructor.

153 Animal Behavior (1) spring of odd years — MR. WHALEN
An analysis of the genetic and experimental determinants of animal behavior. Prerequisite: None.

154 Learning and Memory (1) fall of even years — MR. MCGAUGH AND MR. THOMPSON
A consideration of basic issues concerning the nature of behavioral plasticity and information storage, and their neural substrates. Prerequisite: Biological Sciences 100B, Psychobiology 150, or equivalent.

155 Arousal and Attention (1) winter of even years — MR. WEINBERGER
A consideration of the behavorial characteristics and neural bases of sleep, wakefulness, and attention. Prerequisite: Biological Sciences 100B or consent of instructor.

156 Neurophysiology (1) winter of odd years — MR. VERZEANO
Lecture and laboratory. An introduction to the basic functioning of the nervous system including neuron physiology and sensory system processing. Prerequisite: Biological Sciences 100C, 1 year calculus, 1 year physics. Seniors only.

180 The Biological Sciences and Public Policy (1) winter — STAFF
(Not intended to satisfy breadth requirements in the biological sciences for nonmajors.) A consideration of the impact of 20th century biological sciences upon public policy, the humanities, the arts, the social sciences, and other areas of human endeavor and personal conduct. Prerequisite: A college course in biological sciences and consent of instructor. Pass-Not Passed basis only.

181 Invertebrate Physiology (1) winter — MR. KOOPOWITZ
Lecture. A consideration of special topics of current interest in invertebrate physiology. Prerequisite: Biological Sciences 130 and consent of instructor.

183 Sensory Physiology (1) spring — MR. KOOPOWITZ
Lecture. Introduction to the anatomy and physiology of sense organs illustrating the diversity of form and function which occurs. Particular emphasis is to be placed on transduction mechanisms and kinds of sensory coding. Prerequisite: Introductory physiology and/or introductory neurophysiology and consent of instructor.

184 Pathobiology (1) winter of even years to begin in 1972 — MR. STEINHAUS
Lecture and demonstrations. The biology of disease. The basic principles of disease throughout all life forms and in all life systems, from the standpoint of the basic sciences, particularly the biological sciences. Prerequisite: One year of biological sciences and/or microbiology.

Honors and Special Courses

192H Honors Seminar in General Biology (½) fall, winter, spring
HONORS COMMITTEE: MR. MCLAUGHLIN, CHAIRMAN
Selections for this course will be made toward the end of the quarter preceding the enrollment period for the following quarter. Students in this course participate in the 290 Biological Sciences Colloquium and take exams with that class. Enrollment by invitation only to eligible students. Usually taken in the junior year.

197H Special Study for Honors Students (1) fall, winter, spring
HONORS COMMITTEE: MR. MCLAUGHLIN, CHAIRMAN
Independent research and/or reading on selected subjects. Prerequisite: Enrollment limited to honors students with approval of Honors Committee.

198H Honors Thesis (1) fall, winter, spring
HONORS COMMITTEE: MR. MCLAUGHLIN, CHAIRMAN
Preparation of comprehensive thesis, incorporating studies undertaken in individual research. Enrollment by invitation only.

199A-B-C Special Study for Advanced Undergraduate Students (1-1-1) fall, winter, spring
A Minimum GPA of 2.5 and Consent of Instructor

01 Plant Physiology — MR. ARDITTI
02 Plant Symbiosis, Genetics, Biosystematics — MR. ATSATT
03 Developmental Morphology of Higher Plants — MR. BALL
04 Ichthyology, Marine Ecology — MR. BANE
05 Ecology and Biogeography — MR. BOUGHEY
06 Developmental Biology — MR. CAMPBELL
07 Neurochemistry (Seniors only) — MR. COTMAN
08 Phycology — MR. DIXON

09 Immunology — MR. GRANGER
10 Ultrastructure, Plant and Cell Development — MR. HEALEY
11 Computer Models and Genetics — MR. JUSTICE
12 Sensory Physiology — MR. KOOPOWITZ
13 Parasitology — MR. KRASSNER
14 Marine Invertebrate Biology—Comparative Biochemistry — MR. LENHOFF
15 Physiological Animal Ecology — MR. MACMILLEN
16 Neural Anatomy — MR. GIOLI
17 Learning and Memory (Seniors only) — MR. MCGAUGH
18 Biochemistry-Nucleic Acids — MR. MCLAUGHLIN
19 Psychopharmacology (Seniors only) — MR. RUSSELL
20 Biochemistry-Proteins and Nucleic Acids — MR. STANLEY
21 Pathobiology — MR. STEINHAUS
22 Comparative Animal Physiology — MR. STEPHENS
23 Viral Genetics — MR. TESSMAN
24 Brain and Behavior (Seniors only) — MR. THOMPSON
25 Neurophysiology (Seniors only) — MR. VERZEANO
26 Experimental Neuroanatomy — MR. GLOBUS
27 Biochemistry-Macromolecules — MR. WARNER
28 Arousal and Attention (Seniors only) — MR. WEINBERGER
29 Hormones and Behavior (Seniors only) — MR. WHALEN
30 General Microbiology-Enzymology — MR. WOOLFOLK
31 Biochemical Genetics — MR. WULFF
32 Environmental Microbiology — MR. MOYED
33 Physiological Plant Ecology — MR. RUNDEL
34 Nucleic Acids of Chloroplasts — MR. TEWARI
35 Developmental Biology — MR. SCHNEIDERMAN

Sample Program for Biological Sciences Majors

The biological sciences major should make an attempt to gain a broad education, and as early as possible, should sample courses in other schools to complete the 6-3-3 requirement. In participation in courses outside the School of Biological Sciences, two items should be considered: (1) Extra work in areas related to the biological sciences, and (2) Courses that are complementary to the biological sciences or exploratory in nature. All courses in *italics*, or their equivalents, are required for the baccalaureate in biological sciences.

	FALL	WINTER	SPRING
FRESHMEN	*Chem* 1A **Math* 2A or 5A Univ. Studies I **Breadth Requirement	*Chem* 1B *Math* 2B or 5B Univ. Studies II Breadth Requirement	*Chem* 1C *Math* 2C or 5C Univ. Studies III Breadth Requirement
SOPHOMORE	*Biol. Sci.* 100A *Org. Chem.* 51A *Physics* 3A Breadth Requirement	*Biol. Sci.* 100B *Org. Chem.* 51B *Physics* 3B Breadth Requirement	*Biol. Sci.* 100C *Org. Chem.* 51C *Physics* 3C Breadth Requirement
JUNIOR	*Biol. Sci.* 100D *Biol. Sci. Satellite* Elective Elective	*Biol. Sci.* 100E *Biol. Sci. Satellite* Elective Elective	*Biol. Sci.* 100F *Biol. Sci. Satellite* Elective Elective
SENIOR	Biol. Sci. Elective Biol. Sci. Elective Elective Elective	Biol. Sci. Elective Biol. Sci. Elective Elective Elective	Biol. Sci. Elective Biol. Sci. Elective Elective Elective

* The choice between the Math 2 or Math 5 series should be made in consultation with an advisor.

** Premed and predental students should plan on fulfilling the requirements of these schools; e.g. one year of English composition, one quarter of quantitative analysis, possible foreign language, physical chemistry, psychology, etc.

GRADUATE STUDIES IN BIOLOGICAL SCIENCES

In addition to the required courses, all graduate students, as a part of their graduate program, are required to participate in the departmental teaching program.

Interdepartmental Requirement

The following course is required of all first-year graduate students.

290A-B-C School of Biological Sciences Graduate Colloquium
(½-½-½) fall, winter, spring — STAFF

Weekly colloquia will explore biological organization at different levels of complexity, from the molecule to the biosphere. They will emphasize the manner in which biological behavior at one level is dependent mechanistically upon the preceding level of organization.

Department of Molecular and Cell Biology

The activities of this department include the disciplines of cell biology, biochemistry, biophysics, microbiology, virology, cell physiology, molecular genetics, and cytogenetics, and molecular biology generally. Such subjects as cell growth and development, fine structure, physiochemical organization, cell pathology, homeostatic mechanisms (including energetics and steadistates), cell ecology, and evolutionary potential are among other emphases in graduate courses.

Molecular and Cell Biology Faculty

ROBERT A. WARNER, *Chairman of the Department:* Characterization of macromolecules

GALE A. GRANGER: Immunology, medical microbiology, cell biology

CALVIN S. MCLAUGHLIN: Biochemistry, nucleic acids, protein synthesis

HARRIS S. MOYED: Environmental microbiology

WENDELL M. STANLEY, JR.: Structure and function of macromolecules; biosynthesis of macromolecules in mammalian cells

IRWIN TESSMAN: Viral genetics—mode of action of mutagens

KRISHNA K. TEWARI: Nucleic acids of chloroplasts and other organelles

CLIFFORD A. WOOLFOLK: General microbiology, enzymology

DANIEL L. WULFF: Biochemical genetics

Courses in Molecular and Cell Biology

200A-B-C Research in Molecular and Cell Biology
(½-3) fall, winter, spring

01 Immunology — MR. GRANGER
02 Biochemistry—Nucleic Acids — MR. MCLAUGHLIN
03 Biochemistry—Proteins and Nucleic Acids — MR. STANLEY
04 Viral Genetics — MR. TESSMAN
05 Biochemistry—Macromolecules — MR. WARNER
06 General Microbiology-Enzymology — MR. WOOLFOLK
07 Biochemistry—Genetics — MR. WULFF

Prerequisite: Graduate Registration and consent of instructor.

08 Environmental Microbiology — MR. MOYED
09 Nucleic Acids of Chloroplasts — MR. TEWARI

201A-B-C Seminar in Molecular and Cell Biology (1-1-1)
fall, winter, spring — MR. GRANGER & STAFF

Advanced study in various fields of molecular and cell biology. Topics will vary from year to year. Emphasis on recent literature.

202 Microbial Physiology (1) winter of even years — MR. WOOLFOLK

Lecture and discussion including literature review and student reports. A study of the structure and function of representative microorganisms with emphasis on microbial physiology and enzymology. Prerequisite: Equivalency of Core or a general course in microbiology and organic chemistry and approval of staff.

204 Biochemistry (1) fall — MR. MCLAUGHLIN

Lecture and discussion including literature review and student reports. Study of advanced topics in biochemistry, including emphasis on enzymology, protein chemistry, nucleic acid chemistry, and metabolism. Prerequisite: Equivalency of Core and approval of staff.

207 Advanced Topics in Biochemistry (1) spring — MR. STANLEY

Selected topics in advanced biochemistry including lectures and discussions. There will be coverage of concepts in recent literature of journals. Prerequisite: Open to graduate students or advanced undergraduates with consent of instructor.

208 Physical Chemistry of Macromolecules (1) winter
MR. WARNER, MR. MCLAUGHLIN, MR. STANLEY

Lecture and discussion concerning the techniques available for investigating the physical properties of biologically important macromolecules such as the proteins and nucleic acids. Prerequisite: Basic calculus and thermodynamics and consent of instructor.

209 Advanced Immunology (1) winter of even years MR. GRANGER
Seminar and lecture course with formal lectures and literature study in certain key areas of immunology. Will also include student reports and discussions of topics chosen by participating students in areas of their personal interest. Prerequisite: Immunology 121 and permission of instructor.

290A-B-C Colloquium in Molecular and Cell Biology
(½-½-½) fall, winter, spring MR. WOOLFOLK AND STAFF
Presentation of contemporary research problems in molecular and cell biology and related areas. Lecturers or invited speakers will introduce research and review topics.

Department of Organismic Biology

Organismic biology is concerned with the structure, function, and developmental biology of plants and animals and with such fields as symbiosis and pathobiology. Problems as diverse and as challenging as differentiation, transport mechanisms, hormonal integration, and biological rhythms are at the cutting edge of the field. The Department is particularly well equipped for investigations of form and function of both plants and animals. The electron microscope facilities of the School of Biological Sciences are maintained within the Department, with full supporting services. Equipment for optical microscopy, photomicrography, and time-lapse photography is available, and the Department is well equipped with dark rooms. Several active research programs make use of radiochemical techniques for which extensive facilities are available. The Department possesses culture facilities for a wide range of organisms, including axenic cultures of marine algae, hemoflagellates, and flowering plants, together with aquaria for the maintenance of marine and freshwater plants and animals and extensive glasshouse facilities. The opportunities for field work are extremely good, and it is possible to obtain research material from a wide range of marine, freshwater, and terrestrial communities.

Organismic Biology Faculty

HOWARD A. SCHNEIDERMAN, *Chairman of the Department:* Developmental Biology
JOSEPH ARDITTI: Plant physiology, orchid biology
ERNEST A. BALL: Developmental biology of higher plants
RICHARD D. CAMPBELL: Developmental biology
RALPH W. GERARD: General physiology and neurophysiology
PATRICK L. HEALEY: Ultrastructure, plant and cell development
HAROLD KOOPOWITZ: Sensory physiology
STUART M. KRASSNER: Parasitology, invertebrate biology
HOWARD M. LENHOFF: Marine invertebrate biology and comparative biochemistry
EDWARD A. STEINHAUS: Pathobiology, invertebrate pathology
GROVER C. STEPHENS: Comparative animal physiology

Courses in Organismic Biology

200A-B-C Research in Organismic Biology (½-3 per quarter) fall, winter, spring
01 Plant Physiology MR. ARDITTI
02 Developmental Morphology of Higher Plants MR. BALL
03 Developmental Biology MR. CAMPBELL
04 Developmental Biology MR. SCHNEIDERMAN

05 Ultrastructure—Plant and Cell Development MR. HEALEY
06 Sensory Physiology MR. KOOPOWITZ
07 Parasitology MR. KRASSNER
08 Marine Invertebrate Biology—Comparative Biochemistry MR. LENHOFF
09 Pathobiology MR. STEINHAUS
10 Comparative Animal Physiology MR. STEPHENS

201A-B-C Seminar in Organismic Biology (1-1-1) fall, winter, spring MR. STEPHENS AND STAFF
Advanced study in various fields of organismic biology.

202A-B-C-D-E-F Analytical Techniques in Organismic Biology
(1-1-1-1-1-1) fall, winter, spring MR. ARDITTI AND STAFF
Advanced techniques employed in biological research will be studied from practical and theoretical points of view. These will include separation techniques, radioisotope, photomicrography, and electron microscopy as well as others. Prerequisite: Consent of instructor.

203A-B-C Graduate Tutorial in Organismic Biology (1-1-1) fall, winter, spring
01 Plant Physiology MR. ARDITTI
02 Developmental Morphology of Higher Plants MR. BALL
03 Developmental Biology MR. CAMPBELL
04 Developmental Biology MR. SCHNEIDERMAN
05 Ultrastructure—Plant and Cell Development MR. HEALEY
06 Sensory Physiology MR. KOOPOWITZ
07 Parasitology MR. KRASSNER
08 Marine Invertebrate Biology—Comparative Biochemistry MR. LENHOFF
09 Pathobiology MR. STEINHAUS
10 Comparative Animal Physiology MR. STEPHENS
Intended for 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. Prerequisite: Graduate standing.

232 Comparative Morphogenesis of Vascular Plants (1) fall MR. BALL
Lecture and laboratory. Origins, micro- and ultrastructure, development of the cell, cell wall, parenchyma, collenchyma, meristems, epidermis, sclerenchyma, xylem, phloem, stem, leaf, root, periderm, abscission, flower, fruit, seed, laticifers. Theoretical considerations of development as presented in the modern literature. Prerequisite: Biological Sciences 132 or equivalent courses in elementary morphology or anatomy of vascular plants, or permission of instructor.

233 Physiology of Symbiosis (1) spring of odd years MR. KRASSNER
Nutrition, physiology, and biochemistry of symbiotic relationships. Emphasis will be placed on protozoan and helminth parasites. Prerequisite: Biological Sciences 100A or consent of instructor.

235 Advanced Topics in Comparative Physiology (1) fall of even years MR. STEPHENS
Lecture, laboratory, demonstration, discussion. Topics will change from year to year. Subjects will be primarily in the areas of osmoregulation, water balance, nutrition, and metabolism. Prerequisite: Biological Sciences 131, or equivalent, or written consent of instructor.

237 Phycology (1) spring MR. DIXON
Lecture and laboratory. A survey of the structure, reproduction, and life histories of the algae, both freshwater and marine. Introduction to techniques involved in the culture and cytological investigation of algal material. Prerequisite: Biological Sciences 137, or equivalent, or consent of instructor.

239 Cell Development (1) spring MR. CAMPBELL AND MR. HEALEY
Lecture and demonstrations. Intensive analysis of subcellular events which control cellular differentiation and organism development. Prerequisite: Biological Sciences 134 and 136.

290A-B-C Colloquium in Organismic Biology fall, winter, spring STAFF
Presentation of contemporary research problems in organismic biology and related areas. Lecturers or invited speakers will introduce research and review topics.

Department of Population and Environmental Biology

The areas of interest in the Department of Population and Environmental Biology range from the environmental and genetical relations of populations to the structure and functions of ecosystems. Directions of specialization within this area include population dynamics and population genetics, evolution and adaptation, biogeography and paleoecology, taxonomy and systematics, analysis of plant and animal communities, human ecology, ichthyology, and marine ecology. These diverse specializations share a common concern with phenomena at levels of organization above that of the individual organism—the population, community, and ecosystem.

Students interested in this department should consider taking course work in mathematics (Math 5A-B-C), statistical methods (Math 170A-B), computer techniques (ICS 1), and foreign language, and are encouraged to draw upon the many complementary courses offered by other departments of the School of Biological Sciences.

Population and Environmental Biology Faculty

PETER S. DIXON, *Chairman of the Department:* Phycology
PETER R. ATSATT: Biosystematics, genetics, and ecology of plants
GILBERT W. BANE: Ichthyology, marine ecology
ARTHUR S. BOUGHEY: Human ecology, biogeography, taximetrics
KEITH E. JUSTICE: Computer simulated models, genetics, and ecology of animal populations
RICHARD E. MACMILLEN: Physiological animal ecology
PHILIP W. RUNDEL: Physiological plant ecology

Courses in Population and Environmental Biology

200A-B-C Research in Population and Environmental Biology (½-3 per quarter) fall, winter, spring
01 Plant Symbiosis, Genetics, Biosystematics MR. ATSATT
02 Icthyology—Marine Ecology MR. BANE
03 Ecology, Biogeography, Taximetrics MR. BOUGHEY
04 Computer Models and Genetics MR. JUSTICE
05 Physiological Animal Ecology MR. MACMILLEN
Prerequisite: Graduate registration and consent of instructor.
06 Physiological Plant Ecology MR. RUNDEL
07 Phycology MR. DIXON

201A-B-C Seminar in Population and Environmental Biology (½-½-½) fall, winter, spring MR. ATSATT AND STAFF
Advanced study in areas of population and environmental biology. Topics will vary from year to year.

203A-B-C Graduate Tutorial in Population and Environmental Biology (½-½-½) fall, winter, spring
01 Plant Symbiosis, Genetics, Biosystematics MR. ATSATT
02 Icthyology—Marine Ecology MR. BANE
03 Ecology, Biogeography, Taximetrics MR. BOUGHEY
04 Computer Models and Genetics MR. JUSTICE
05 Physiological Animal Ecology MR. MACMILLEN
Prerequisite: Graduate registration and consent of instructor.
06 Physiological Plant Ecology MR. RUNDEL

204 Vertebrate Biology: Physiological Ecology (1) spring MR. MACMILLEN
Lecture, laboratory, field. An examination of the functional means by which vertebrates cope with the environmental circumstances under which they live. Particular emphasis will be on the roles of osmoregulation, thermoregulation, and energy metabolism in the lives of semidesert- and desert-dwelling tetrapods. Prerequisite: Graduate standing and permission of instructor; a limited number of undergraduates may be permitted.

205 Plant Taxonomy (1) spring STAFF
Lecture, laboratory, field. Principles of taxonomy, including discussions, literature reviews, and student reports. While covering all principles of taxonomy, emphasis will be placed on plant taxometrics and numerical taxonomy. Prerequisite: Graduate registration, or upper division standing, and consent of instructor.

210 Fundamentals of Tropical Biology (2) spring, summer MR. BOUGHEY AND STAFF
Lectures and field work in San José and field stations in various regions of Costa Rica. Prerequisite: Registration for graduate work in School of Biological Sciences.

211 Advanced Tropical Biology (2) spring, summer MR. BOUGHEY AND STAFF
Lectures and especially field work at the various Organization for Tropical Studies centers at Costa Rica; directed towards biozoological aspects. Prerequisite: Registration for graduate work in the School of Biological Sciences and some previous experience of tropical biology.

212 Advanced Tropical Biology (2) spring, summer MR. BOUGHEY AND STAFF
Lectures and especially field work at the various Organization for Tropical Studies centers at Costa Rica; directed towards botanical aspects. Prerequisite: Registration for graduate work in the School of Biological Sciences and some previous experience of tropical biology.

290A-B-C Colloquium in Population and Environmental Biology (½-½-½) fall, winter, spring MR. MACMILLEN AND STAFF
Invited speakers will introduce research and review topics within the area of population and environmental biology.

Department of Psychobiology

Psychobiology is concerned with the biological bases of behavior. The focus of study in psychobiology is upon the role of behavior in adaptation and the mechanisms by which this is accomplished. Emphasis is given to problems of the neural, endocrine, biochemical, genetic, and experimental determinants of arousal and attention, sensation and perception, learning, memory, motivation, emotion, and instinctive behavior. A broad comparative approach is taken to these problems. The student interested in graduate training in psychobiology should prepare himself by taking course work in biological sciences, in physical sciences, chemistry through organic chemistry, physics, and mathematics through calculus in particular; and in psychology, general experimental psychology, comparative and physiological psy-

chology, sensation and perception, and learning and memory in particular. Training in statistics and experimental design is highly recommended.

Psychobiology Faculty

RICHARD E. WHALEN, *Chairman of the Department:* Neural and endocrine bases of behavior
CARL COTMAN: Neurochemistry, molecular psychology
ROLAND GIOLI: Neural anatomy
ALBERT GLOBUS: Experimental neuroanatomy
GARY STEPHEN LYNCH: Neural bases of activation and arousal
JAMES L. MCGAUGH: Biological bases of learning and memory
ROGER W. RUSSELL: Biological bases of behavior
RICHARD F. THOMPSON: Neurophysiological bases of behavior
MARCEL VERZEANO: Neurophysiology
NORMAN M. WEINBERGER: Neural bases of arousal and attention

Courses in Psychobiology

200A-B-C Research in Psychobiology (½-3 per quarter) fall, winter, spring
01 Neurochemistry MR. COTMAN
02 Learning and Memory MR. MCGAUGH
03 Psychopharmacology MR. RUSSELL
04 Brain and Behavior MR. THOMPSON
05 Neurophysiology MR. VERZEANO
06 Arousal and Attention MR. WEINBERGER
07 Hormones and Behavior MR. WHALEN
Prerequisite: Consent of instructor.

08 Neural Anatomy MR. GIOLI
09 Experimental Neuroanatomy MR. GLOBUS

201A-B-C Seminar in Psychobiology (1-1-1) fall, winter, spring STAFF
Advanced study of current topics in various areas of psychobiology. Topics will vary from term to term and from year to year. May be repeated for credit. Prerequisite: Consent of instructor.

202A-B-C Methods in Psychobiology (1-1-1) fall, winter, spring STAFF
Lecture, discussion, and laboratory demonstration and participation course emphasizing classical as well as recent developments in psychobiological research methods and techniques. Prerequisite: Consent of instructor.

203 Comparative Behavior (1) fall MR. WHALEN
An analysis of the nature and bases of complex animal behavior with particular emphasis on the problem of "instinctive" behavior. Prerequisite: Consent of instructor.

204 Learning and Memory (1) winter MR. MCGAUGH
A consideration of the problems of learning and memory in animals in terms of current research and theory. The problem of the nature of mechanisms involved in memory storage is emphasized. Prerequisite: Consent of instructor.

205 Attentive and Motivational Processes (1) spring MR. WEINBERGER
An analysis of the structure and function of peripheral and central nervous system processes underlying attention and motivation. Particular attention will be given to neurophysiological events involved in attention, arousal, and sleep. Prerequisite: Consent of instructor.

206A-B-C Neurobiology (1-1-1) fall, winter, spring
MR. WEINBERGER, MR. THOMPSON, MR. COTMAN
Lecture and laboratory. An integrated three-quarter course in the basic structure and function of nervous systems viewed from both gross and micro levels, using morphological, physiological, and biochemical approaches. Prerequisite: Permission of instructor.

207A-B-C Experimental Neurobiology (1-1-1) fall, winter, spring
MR. WEINBERGER, MR. THOMPSON, MR. COTMAN
Research theory, techniques, and their application in neurobiology. Prerequisite: Concurrent enrollment in 206.

208A-B-C Research Techniques in Neurobiology (1-1-1) fall, winter, spring
MR. BIRCH, MR. COTMAN, MR. THOMPSON, MR. WEINBERGER
First-year graduate core course in psychobiology—required of all graduate majors.

241 Advanced Neurophysiology (1) winter of odd years MR. VERZEANO
Psychobiology 241 and 242 comprise an integrated study of advanced neurophysiology, including conceptual, theoretical, and applied aspects of nervous system function. Prerequisite: Mathematics 2C, Physics 3B, Chemistry 51C, Elementary Statistics, Elementary Electronics, Psychobiology 206A-B-C, 207A-B-C.

242 Advanced Experimental Neurophysiology (1) winter of odd years MR. VERZEANO
Prerequisite: Concurrent enrollment in Psychobiology 241.

Graduate Seminars (offered in alternate years)

260 Learning and Memory (1) MR. MCGAUGH
261 Hormones and Behavior (1) MR. WHALEN
262 Neural Networks (1) MR. VERZEANO
263 Brain and Behavior (1) MR. THOMPSON
264 Neurochemistry (1) MR. COTMAN
265 Psychopharmacology (1) MR. RUSSELL
266 Arousal and Attention (1) MR. WEINBERGER
290A-B-C Colloquium in Psychobiology (½-½-½) fall, winter, spring STAFF
Presentation of contemporary research problems in psychobiology and related areas by invited speakers. Prerequisite: Graduate enrollment in the Department of Psychobiology.

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 to performing.

We have deliberately chosen not to become trapped by articulating perfunctory objectives, inasmuch as aims and goals are frequently as ephemeral as the constantly changing human in a time when traditions are radically dissolved or fundamentally transformed into tentative assumptions and practices. This, of course, does not mean that the program is without a center. The emphasis in this conservatory approach is in realizing at a moment in life the creative productivity of an active, serious commitment to a human process involving art, dance, drama, and music.

Offerings in all areas of the fine arts include a comprehensive study of literature, history, theory, and criticism—resources that are not only substantive materials in themselves, but essential research sources for the creative art. The intellectual activity of the theoretical, literary, and historical courses complement the practical work in the studio workshops and performances.

A program concerned essentially with giving form to insights and sensations 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 professionals who have earned their living professionally and who continue to maintain professional assignments and commitments.

In addition to the permanent artist-in-resident faculty, visiting artists have and will always comprise about one-third of the staff, providing a constant inflow of ideas and personalities counteracting the sometimes corrosive influence of a permanent faculty. The association of many visiting artists implements a program concerned with process, exposing the student to a diversity of images, and encouraging him to apply himself to a creative situation rather than to apply pedagogical techniques or a rigid intellectual pattern. Significant art has always been revolutionary, inevitably disturbing, because the fresh symbol threatens the collective sensibility of an established order. A variety of artists challenges the student's sensibilities and encourages him to think and to create freshly and freely.

This ideology focused on process, the professional and scholar-performer faculty, the intellectual resources of the university, and the emphasis on the individual's commitment and courage, provide, 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 his life. Our central concern is the development of a creative talent in an atmosphere where cause prevails over effect, where doing is more important than talking (although the two are not mutually incompatible), where the whole person can experience the heightened feelings and illuminating insights of the creative process, where the process is the creative act, where the product is the creative process contained in the student. "Painting is a state of being," Jackson Pollock commented. "Painting is self-discovery. Every good artist paints what he is."

The School of Fine Arts is comprised of the Departments of Art, Drama, Music, and Dance, with the Dean of the School and the departmental chairmen administering the academic activities of the four departments.

The Departments of Art, Drama, Music, and Dance offer four-year curricula leading to the Bachelor of Arts degree and a two-year program leading to the Master of Fine Arts degree. Introductory courses in film are also available in the School of Fine Arts.

The curricula in the fine arts are organized to achieve a balance between (1) professional competence, and (2) a liberal education which can contribute substantially to the perception of the artist and the significance of what he has to say in his particular medium.

Departmental majors are offered in Art, Drama, Music, and Dance. Departmental requirements include (1) extensive studio and workshop experiences, (2) essential theoretical and historical backgrounds, and (3) exercises in criticism. The requirements for all majors in the fine arts are designed to provide opportunities for the student-artist to work creatively at his medium for at least four hours a day from the freshman year through graduation.

Teaching Credentials: Upon completion of a five-year program which includes the divisional and departmental requirements for the Bachelor's degree plus additional requirements established by the California State Board of Education, fine arts majors may qualify for teaching credentials at the elementary, secondary, and junior college levels.

The University's Cultural Programs: In addition to producing student concerts, musicals, and dramatic performances, the School of Fine Arts in collaboration with UCI's Committee for Arts and Lectures 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 annual All-University Student Art Festival provides an opportunity for students and faculties in the arts on the various University campuses to meet one another, to exchange ideas and to share the results of their creative efforts, to participate in workshops, and to talk with eminent professional people in the creative arts.

Graduate Program

The emerging sophistication among painters, sculptors, dancers, musicians, composers, singers, actors, directors, and choreographers today necessitates training artists in an intellectual environment, an environment which provides stimulation beyond technical facility. The artist cannot work in a vacuum: he is dependent upon a community for concepts, conversation, and communication. The atmosphere of the university provides the developing artist an ideal opportunity to live sensitively in the midst of accessible resources in a climate that is constantly vibrating with life and challenging our sensibilities.

Our aim is 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. We believe, then, that intellectual integrity is not incompatible with professional excellence, and that, indeed, one cannot exist without the other in achieving what Alfred North Whitehead calls "active wisdom."

The School of Fine Arts offers a Master of Fine Arts Degree in Fine Arts with specializations in the areas of Art, Dance, Drama, and Music.

Admission to Graduate Program

Applicants for admission to the program must:

a. Meet the general requirements for admission to graduate status as set forth in the Announcement of the Graduate Division. Normally, the Graduate Record Examination will not be required.
b. Present evidence of having completed an undergraduate major in art, dance, drama, or music substantially the same as offered at UCI, or satisfy the faculty in any one of the areas of specialization that he can perform successfully in the program.
c. Audition, or present a recorded demonstration of performance, if applying for one of the performing arts programs; present a portfolio if applying for a studio major in art; present a manuscript if applying for a major in playwriting in the area of drama; present a composition if applying for composition in the area of music.

Upon admission to the program the student will be assigned two graduate advisors for orientation and consultation.

Requirements for the M.F.A. Degree

Two years in residence is normally required for all M.F.A. candidates. In addition to meeting the general university requirements as stated in the Announcement of the Graduate Division, candidates for the M.F.A. degree will be required to complete satisfactorily the requirements outlined below.

a. Complete a minimum of sixty quarter units of graduate level courses or approved upper division courses. Approved upper division courses, not to exceed twenty units, taken as a graduate student may count toward the degree.
b. (1) Prepare a "performance," "exhibition," "playwriting," or "composition" project, supported by a written essay of about twenty pages. Defend the project and the essay in a one-hour oral examination. *Or,*
(2)Prepare an essay of about seventy-five pages in area of research; or a two-year notebook of at least fifty reviews if in dramatic criticism. Defend the essay or notebook in a one-hour oral examination.
c. The language requirements will vary from none to two under Plan b (1), depending upon the area of specialization. The language requirements will vary from one to two under Plan b (2), depending upon the area of specialization. Satisfaction of a foreign language requirement shall be demonstrated, subject to the approval of the area of specialization, under one of the following options:
(1)Written or oral examination administered by area of specialization.
(2)Educational Testing Service Graduate School Foreign Language Test.
(3)Satisfactory completion of a course at a specified level.

All students interested in graduate study in the School of Fine Arts should obtain the brochure on graduate programs from the Office of the School of Fine Arts.

Program in Art

The program in art provides basic studio experiences in the fundamental knowledge and techniques of painting, sculpture, design, and graphic arts, and a comprehensive 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 constantly aims to develop a sense of visual awareness by as wide a range of the

study of art as possible. Each student will be able to discover an area and style particularly suited to his own talents and interests. The program is designed for students preparing to continue professionally as artists, as critics, as historians, as curators in museums, and as teachers, as well as for students who, while not planning to make the study of art their vocation, have a serious interest in the theory, practice, and history of the visual arts.

The distinguishing characteristics of the program leading to the Bachelor of Arts degree lie in the interrelated approach to studio practice, history, and criticism. The art major experiences the creative aspects of art by learning to think with the materials and techniques of his medium. He experiences, furthermore, the historical continuum of art as a research source and cultural achievement. And finally he engages in critical exercise which is essential to achieving the vital balance between the perceptual and conceptual in the creative process. The aim of the program in the visual arts is to enable the student to apply himself to any visual situation (studio, historical, critical) rather than to apply pre-learned techniques or a rigid intellectual pattern.

Nonmajors are welcome to participate in all aspects of the program, providing prerequisites are met. Courses without prerequisites particularly suited for the nonmajor include the basic studio course, *Visual Arts;* The elementary studio courses in life drawing, painting, sculpture, and graphic arts; the introductory course in principles of art and art criticism, *The Nature of Art: Structure and Style;* and all courses in the history of art.

Program in Dance

The program in dance provides basic 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 pre-classic dance forms and their musical structures provide additional workshop experiences 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 serve 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 basic techniques of ballet and extend through the contemporary idioms of jazz, modern, and free-style. The aim is to develop kinetic resources, precision, flexibility, and freedom in an eloquently coordinated and intelligently responsive body.

Nonmajors are welcome to participate in all aspects of the program, providing prerequisites are met. Courses without prerequisites particularly suited for the nonmajor include the basic workshops in ballet, free-style and jazz, and the course in the history of dance.

Program in 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 practice, 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 department. 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.

Nonmajors are welcome to participate in all aspects of the program providing prerequisites are met. Courses without prerequisites particularly suited for the nonmajor include the elementary studio course, *Acting;* the introductory course in criticism, *The Nature of Drama: Structure and Style;* and all courses in dramatic literature and history of theatre. Participation in all aspects of the production of plays, musicals, operettas, and operas is open to all qualified students.

Program in Music

The program for the A.B. degree with a major 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.

Entering majors are expected to have competence in the practice of music in reading and performing. Basic to the program for the graduating major is an effective command of the piano; the performance at sight of moderately difficult works. Students may demonstrate this skill by examination.

Performance requirements include a senior recital, instrumental or vocal, and participation in the chorus, orchestra, or in chamber music during each of his four years.

Beyond the specific goals outlined above and the requirements listed below, the student in music, through cooperative programs undertaken in conjunction with the other parts, 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.

Nonmajors are welcome to participate in all aspects of the program, providing prerequisites are met. Qualified students are invited to participate in the chorus, orchestra, and chamber groups.

Art Faculty

ALAN SOLOMON, *Professor of Art and Chairman of Art*
VIJA CELMINS, *Lecturer in Art*
ROBERT IRWIN, *Lecturer in Art*
CRAIG KAUFFMAN, *Lecturer in Art*
TONY DELAP, *Assistant Professor of Art*
JOHN MASON, *Associate Professor of Art*
PHILIP MCALEER, *Assistant Professor of Art*
DAVID METZGAR, *Assistant Professor of Art*
ROBERT MORRIS, *Lecturer in Art*
EDWARD MOSES, *Lecturer in Art*
KENNETH PRICE, *Lecturer in Art*

Lower Division Courses in Art

20 The Nature of Art: Structure and Style (1)
30A-30B-30C Visual Arts Fundamentals (1-1-1)
30A Fundamentals of drawing and pictorial structure
30B Theory of color and two-dimensional design
30C Three-dimensional design
40A-40B-40C History of Art (1-1-1)
45 Problems in Design (1) may be repeated for credit.
50A-50B-50C Drawing (1-1-1)
60A-60B-60C Painting (1-1-1)
70A-70B-70C Sculpture (1-1-1)
80A-80B-80C Graphic Arts (1-1-1)
Introduction to lithography.
86A-86B-86C Ceramics (1-1-1)

Upper Division Courses in Art

Courses in the following 100 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 20th-Century Painting.

The topics within a given area will vary from quarter to quarter; hence if the topic varies each course may be repeated for credit. Art 40A-B-C *is prerequisite.*

100 Studies in Ancient Art (1)
101 Studies in Greek Art (1)
102 Studies in Roman Art (1)
103 Studies in Medieval Art (1)
104 Studies in Southern Renaissance Art (1)
105 Studies in Northern Renaissance Art (1)
106 Studies in Baroque Art (1)
107 Studies in 18th-Century Art (1)
108 Studies in 19th-Century Art (1)
109 Studies in 20th-Century Art (1)

110 Studies in American Art (1)
111 Studies in Primitive Art (1)
112 Studies in Oriental Art (1)
Art 40A-B-C is not prerequisite for the following 100N sequence courses.

100N Art of the Ancient World (1)
103N Art of the Medieval World (1)
104N Leonardo and the Italian Renaissance (1)
105N Durer and the Northern Renaissance (1)
106N Rembrandt and the Baroque (1)
108N Impressionism and 19th-Century Art (1)
109N Picasso and 20th-Century Art (1)
110N Frank Lloyd Wright and 20th-Century Architecture (1)
112N Oriental Art (1)
127 History of Design (1)
128 Art and Technology (1)
129 The New American Painting (1)
130 The Contemporary Scene (1)
140 Criticism of Art (1)
All advanced problems, special studies, and tutorial courses may be repeated for credit.

145 Advanced Problems in Design (1)
150 Advanced Problems in Life Drawing (1)
160 Advanced Problems in Painting (1)
170 Advanced Problems in Sculpture (1)
180 Advanced Problems in Graphic Arts (1)
185 Design and Typography (1)
186 Advanced Problems in Ceramics (1)
190 Studio Problems (1)
191 Studio in Drawing (1)
192 Studio in Painting (1)
193 Studio in Sculpture (1)
194 Studio in Graphic Arts (1)
195 Art Museum Problems (1)
198 Studio in Ceramics (1)
199 Special Studies in the History and Criticism of Art (1)
Senior Art History majors only.

Graduate Courses in Art

All graduate courses may be repeated for credit.

Art 200 Bibliography and Research (1)
Art 210 Graduate Studio: Painting (1)
Art 211 Graduate Studio: Sculpture (1)
Art 212 Graduate Studio: Ceramics (1)
Art 214 Graduate Studio: Graphic Arts (1)
Art 215 Graduate Studio: Problems (1)
Art 220 Seminar in Art History (1)
Art 230 Seminar in Problems of Contemporary Art (1)
Art 240 Graduate Projects (1)
Art 250 Directed Reading (1)
Art 260 Thesis (1)

Dance Faculty

EUGENE LORING, *Senior Lecturer in Dance and Chairman of Dance*
WILLIAM COUSER, *Lecturer in Dance*
PAUL GLEASON, *Lecturer in Dance*
JAMES PENROD, *Assistant Professor of Dance*
JANICE GUDDE PLASTINO, *Assistant Professor of Dance*

Lower Division Courses in Dance

20A-20B-20C Theories of Dance (1-1-1)
Open only to students enrolled in workshop courses.

30A-30B-30C Studio Workshop in Ballet I (½-½-½)
35A-35B-35C Studio Workshop in Ballet II (½-½-½)
Prerequisite: Ballet I

40A-40B-40C Studio Workshop in Free-Style I (½-½-½)
45A-45B-45C Studio Workshop in Free-Style II (½-½-½)
Prerequisite: Free-Style I

50A-50B-50C Studio Workshop in Jazz I (½-½-½)
Prerequisite: one quarter of Free-Style I

55A-55B-55C Studio Workshop in Jazz II (½-½-½)
Prerequisite: Jazz I

60 Dance Performance (1)
May be repeated for credit.

65A-65B-65C Dance Notation (1-1-1)

Upper Division Courses in Dance

110A-110B-110C History of Dance (1-1-1)
120A-120B-120C Music for Dancers (1-1-1)
125 Criticism of Dance (1)
130A-130B-130C Advanced Studio Workshop in Ballet III (½-½-½)
Prerequisite: Ballet II

135A-135B-135C Advanced Studio Workshop in Ballet IV (½-½-½)
Prerequisite: Ballet III

140 Advanced Studio Workshop in Free-Style (½)
May be repeated for credit. Prerequisite: Free-Style II.

150 Advanced Studio Workshop in Jazz (½)
May be repeated for credit. Prerequisite: Jazz II.

155A-155B-155C Choreography I (1-1-1)
160 Advanced Dance Performance (1)
May be repeated for credit.

170 Ethnic Dance of Eastern Cultures (1)
175 Ethnic Dance of Western Cultures (1)
180A-180B-180C Choreography II (1-1-1)
185A-185B-185C Choreography III (1-1-1)
190 Studio Tutorial in Ballet (½)
May be repeated for credit. Prerequisite: Ballet III.

191 Studio Tutorial in Free-Style (½)
May be repeated for credit. Prerequisite: Advanced Studio Workshop in Free-Style.

192 Studio Tutorial in Jazz (½)
May be repeated for credit. Prerequisite: Advanced Studio Workshop in Jazz.

193 Studio Tutorial in Choreography (1)
May be repeated for credit. Prerequisite: Choreography III.

194 Tutorial in History of Dance (1)
May be repeated for credit. Prerequisite: 110A-B-C, 120A-B-C, 180A-B-C.

195 Tutorial in Dance Notation (1)
May be repeated for credit.

198 Experimental Theatre (1)
May be repeated for credit.

Graduate Courses in Dance

All graduate courses may be repeated for credit.

Dance 200 Bibliography and Research (1)
Dance 210 Graduate Studio: Ballet (½)
Dance 211 Graduate Studio: Free-Style (½)
Dance 212 Graduate Studio: Jazz (½)
Dance 213 Graduate Studio: Choreography (1)
Dance 220 Seminar in Dance History (1)
Dance 230 Seminar in Theories of Dance (1)
Dance 231 Seminar in the Teaching of Dance (1)
Dance 240 Graduate Projects (1)
Dance 250 Directed Reading (1)
Dance 260 Thesis (1)

Drama Faculty

CURT CONWAY, *Lecturer in Drama and Acting Chairman of Drama*
IAN BERNARD, *Lecturer in Drama*
ROBERT S. COHEN, *Assistant Professor of Drama*
ROBERT FLETCHER, *Lecturer in Drama*
CLAYTON GARRISON, *Professor of Drama and Dean of Fine Arts*
JOHN HARROP, *Assistant Professor of Drama*
JOHN ELLIOTT, *Production Manager*
WILLIAM INGE, *Professor of Drama*
HERBERT MACHIZ, *Lecturer in Drama*
DANIEL STEIN, *Assistant Professor of Drama*
RICHARD TRIPLETT, *Assistant Professor of Drama*

Lower Division Courses in Drama

20 The Nature of Drama: Structure and Style (1)
Same as English 20.

25 Shakespeare (1)
Same as English 25.

30A-30B-30C Acting (1-1-1)
30A Analysis of script and performance of scenes
30B Characterization
30C Styles of Acting
32 The Art of Writing: Drama (1)
Same as English Wr 32

40A-40B-40C Development of Drama (1)
Same as English 40

40A Greek Drama through Shakespeare
40B Restoration Drama through Ibsen
40C Contemporary Drama
60 University Theatre (1)
May be repeated for credit.

Upper Division Courses in Drama

100A-100B-100C Design for Theatre (1-1-1)
100A Costume Design
100B Scene Design
100C Lighting Design
101 Black Theatre (1)
May be repeated for credit.

105A-105B-105C Technical Production (1-1-1)
105A Costume
105B Scenery
105C Lighting
112 Playwriting (1)
Same as English Wr 112. May be repeated for credit.

114 Film Writing (1)
May be repeated for credit.

115A-115B Film Making (1-1)
Prerequisite: Two quarters of Drama 114 and interview with instructor.

120A-120B History of Design in Theatre (1-1)
130 Advanced Acting (1)
May be repeated for credit.

132 Voice and Speech in the Theatre (1)
140 Contemporary American Drama (1)
141 Contemporary British Drama (1)
142 Contemporary Continental Drama: Theatre of the Absurd (1)
143 Greek Drama (1)
144 Medieval and Tudor Drama (1)
Same as English 103.

145 Elizabethan and Jacobean Drama (1)
Same as English 103.

146 Shakespeare (1)
Same as English 103.

147 Restoration and Eighteenth-Century Drama (1)
Same as English 103.

148 Modern British Drama: 1870-1940 (1)
Same as English 103.

149 Modern American Drama: 1870-1940 (1)
Same as English 103.

150 Realism and Revolt: Ibsen to O'Neill (1)
151 Advanced Scene Design (1)
May be repeated for credit.

152 Advanced Lighting Design (1)
May be repeated for credit.

154 Costuming for the Theatre (1)
May be repeated for credit.

155 Advanced Costume Design for Theatre (1)
May be repeated for credit.

160 Advanced University Theatre (1)
May be repeated for credit.

165 Music Theatre Workshop (½)
May be repeated for credit.

166 History of Operetta and Musical Theatre (1)
170 Directing (1)
May be repeated for credit.

175 Staging Shakespeare (1)
180 Dramatic Criticism (1)
182 History of Dramatic Criticism (1)
185 Advanced Directing (1)
May be repeated for credit.

186 Projects in Film Making (1)
Prerequisite: Drama 115A-B and permission of instructor. May be repeated for credit.

The following may be repeated for credit:

190 Studio in Acting (1)
191 Studio in Directing (1)
194 Tutorial in Criticism (1)
195 Studio in Production (1)
196 Repertory Theatre (1)
197 Tutorial in Dramatic Literature (1)
198 Experimental Theatre (1)

Graduate Courses in Drama

All graduate courses may be repeated for credit.

Drama 200 Bibliography and Research (1)
Drama 210 Graduate Studio: Acting (1)
Drama 211 Graduate Studio: Directing (1)
Drama 212 Graduate Studio: Playwriting (1)
Drama 213 Graduate Studio: Design (1)
Drama 214 Graduate Studio: Film Writing (1)

Drama 215 Graduate Studio: Film Making (1)
Drama 220 Seminar in Dramatic Literature (1)
Drama 221 Seminar in Criticism (1)
Drama 222 Seminar in Theatre History (1)
Drama 230 Seminar in Contemporary Theatre (1)
Drama 240 Graduate Projects (1)
Drama 250 Directed Reading (1)
Drama 260 Thesis (1)

Music Faculty

COLIN SLIM, *Associate Professor of Music and Chairman of Music*
MAURICE ALLARD, *Assistant Professor of Music and Conductor of the University Chorus*
CAROL BOELTER, *Lecturer in Music*
WILLIAM HOLMES, *Associate Professor of Music*
ARNOLD JUDA, *Lecturer in Music*
PETER ODEGARD, *Associate Professor of Music and Conductor of the University Orchestra*
THOMAS WHITNEY, *Acting Instructor of Music*

A professional tutorial staff in vocal and instrumental music supplements the staff.

Lower Division Courses in Music

5A-5B-5C Musicianship I (½-½-½)
10 Basic Piano (½)
For music majors only. May be repeated for credit.

15A-15B-15C Musicianship II (½-½-½)
20 The Nature of Music: Structure and Style (1)
30A-30B-30C Theory I (1-1-1)
40A-40B-40C History and Literature of Music (1-1-1)
50A-50B-50C Composition (1-1-1)

All courses in the 60 sequence may be repeated for credit.

60 University Orchestra (½)
61 Chamber Ensemble (½)
62 University Chorus (½)
63 Vocal Music for Small Chorus (½)
By audition only: Music 62 must be taken concurrently.

64 Opera Workshop (½)
65 Literature for Keyboard (½)
66 Literature for String Instruments (½)
67 Literature for Wind Instruments (½)
68 Vocal Literature (½)

Upper Division Courses in Music

130A-130B-130C Theory II (1-1-1)
135A-135B-135C Counterpoint (1-1-1)
138A-138B-138C Fugue (1-1-1)

Courses in the following 140 sequence are for music majors and will include such topics as: The Motet in the 13th and 14th Centuries, Renaissance Keyboard Music, The Cantatas of Bach, The 18th-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.

140 Studies in Medieval Music (1)
141 Studies in Renaissance Music (1)
142 Studies in Music of the Baroque Period (1)
143 Studies in Music of the Classical Period (1)
144 Studies in Music of the Romantic Period (1)
145 Studies in Music of the 20th Century (1)

Courses in the following 140N sequence are for nonmajors in music. Prerequisite for each of the courses is Music 20.

140N Music of the Middle Ages (1)
141N Music of the Renaissance (1)
142N Music of the Baroque Period (1)
143N Music of the Classical Period (1)
144N Music of the Romantic Period (1)
145N Music of the 20th Century (1)
150 Advanced Composition (1)
May be repeated for credit.

152A-152B-152C History of Opera (1-1-1)
155A-155B-155C Form and Analysis (1-1-1)

All courses in the 160 sequence may be repeated for credit.

160 Advanced University Orchestra (½)
161 Advanced Chamber Ensemble (½)
162 Advanced University Chorus (½)
163 Advanced Vocal Music for Small Chorus (½)
By audition only. Music 162 must be taken concurrently.

164 Advanced Opera Workshop (½)
165 Advanced Literature for Keyboard (½)
166 Advanced Literature for String Instruments (½)
167 Advanced Literature for Wind Instruments (½)
168 Advanced Vocal Literature (½)
169 Conducting (1)
170 Orchestration (1)
180 Music Criticism (1)
190 Studio Tutorials in Music (½)
(piano, strings, winds, voice, conducting)

191 Tutorial in Music (1)
May be repeated for credit.

198 Experimental Theatre (1)
May be repeated for credit.

Graduate Courses in Music

All graduate courses may be repeated for credit.

Music 200 Bibliography and Research (1)
Music 210 Graduate Studio: Vocal Literature (1)
Music 211 Graduate Studio: Instrumental Literature (1)
Music 212 Graduate Studio: Composition (1)
Music 220 Seminar in History of Music (1)
Music 230 Seminar in Contemporary Music (1)
Music 240 Graduate Projects (1)
Music 250 Directed Reading (1)
Music 260 Thesis (1)

Fine Arts Interdisciplinary Courses

Art 20 The Nature of Art: Structure and Style (1)
Dance 20 Theories of Dance (1)
Drama 20 The Nature of Drama: Structure and Style (1)
Music 20 The Nature of Music: Structure and Style (1)
Fine Arts 30 The Nature of Film (1)
Fine Arts 40 The Nature of Architecture: Problems, Structure, and Style (1)
Fine Arts 100 The Film as Art (1)
Fine Arts 120 Studies in the Theory and Practice of the Arts (1)

May be repeated for credit.

Fine Arts 199 Seminar in Interdisciplinary Studies in Fine Arts (1)

May be repeated for credit.

SCHOOL OF HUMANITIES

SAMUEL C. MCCULLOCH
Dean

The humanities are concerned with fundamental problems of human thought and experience. They contribute both to understanding and to continued appraisal of the human condition. They introduce the student to those many broad and difficult problems of value not susceptible to statistical or quantitative judgment; therefore, humanistic study is of importance to students in all areas of specialization. The humanities provide a useful foundation for those who plan to work toward advanced degrees in medicine, business, law, journalism, and other professional disciplines. It is not always understood that many such professional schools encourage undergraduates to major in the humanities and, at the very least, to study extensively in the humanistic disciplines.

The School is composed of the Departments of Classics, English and Comparative Literature, French and Italian, German and Russian, History, Philosophy, and Spanish and Portuguese, and offers baccalaureate work in classics, comparative literature, English, history, philosophy, and in foreign languages and their literatures. The School encourages joint majors, majors with supporting work in related disciplines, and, wherever practicable, interdisciplinary programs and comparative studies. For students in other schools on all levels, it offers a wide range of electives which are available without prerequisite. It is concerned as well with offering opportunity to improve the basic humanistic skills of writing, reading, and, of course, thinking.

Each department provides the means by which outstanding undergraduate majors are offered unusual opportunities for advanced study and research. Each department already has, or plans, work leading to the Master of Arts and Doctor of Philosophy degrees. The Department of English and Comparative Literature offers, as well, the Master of Fine Arts in Writing.

Linguistics

Students at Irvine can major in Linguistics through either Humanities or Social Sciences. The core curriculum for majors consists of the following courses: Linguistics 100, Introduction to Linguistics; Linguistics 101, Comparative and Historical Linguistics; Linguistics 102, Phonology and Morphology; Linguistics 103, Syntactic Analysis; Linguistics 104, Computational Linguistics or Psycholinguistics; Linguistics 105, Field Methods in Linguistics.

Requirements for Linguistics Majors in Humanities

Core courses listed above; three courses in a major foreign language beyond 2C or the equivalent: 10A-B, 11; three courses in a non-Indo-European language; two courses in elementary Latin or Greek (unless one of these is the major language); one or two courses in the history of English or the major foreign language.

All Linguistics majors in Humanities are encouraged to take their elective courses in philosophy and social sciences related to Linguistics, which would also count toward meeting graduation requirements.

Pre-Law Students

Students interested in entering law school upon completion of their baccalaureate can major in any of the humanities. Specific requirements imposed by specific law schools can be met by choosing the necessary electives.

DEPARTMENT OF CLASSICS

The student planning to major in Greek, Latin, or Classics should obtain a copy of the Classics Handbook from the departmental office.

Undergraduate Programs

The Department of Classics aims to provide for the undergraduate student 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. To awaken in the non-Classics major a cognizance of the values and influences of Greece and Rome on our own civilization through courses in classical literature in translation, mythology and religion.

For the major, the basis for studying the classics must be competency in one or 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 the first year he 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 himself to the theories and techniques of literary and textual criticism. In addition, he will obtain a rich background in such ancillary disciplines as ancient history, archaeology, classical art, drama, philosophy, and religion.

The Department of Classics provides the undergraduate student with a choice of three separate majors: Greek, Latin, and Classics (the latter a combined Greek and Latin major). Students are encouraged to consult with the Classics staff regarding the appropriate choice of major and design of program.

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, 2A, and 2B respectively. Exceptions to this ruling can be made, but must have the approval of the Department Chairman. Students with high school training in the classical languages are encouraged to consult with the Classics staff before enrolling in Classics courses.

Classics Faculty

THEODORE F. BRUNNER, *Associate Professor of Classics, Chairman of the Department, and Associate Dean of Humanities*

LUCI BERKOWITZ, *Assistant Professor of Classics*

PETER COLACLIDES, *Professor of Classics*

RICHARD I. FRANK, *Assistant Professor of Classics and Ancient History*

RONALD F. KOTRC, *Assistant Professor of Classics*

LEWIS A. SUSSMAN, *Assistant Professor of Classics*

Undergraduate Courses in Classics

Greek 1A-1B-1C Fundamentals of Greek (1-1-1)

The elements of Classical Greek grammar and syntax, with selected readings. 1C is devoted to readings from the dialogues of Plato. (No prerequisites.)

Greek 2A-2B-2C Intermediate Greek (1-1-1)

Readings from Greek authors. 2A: Homer; 2B: Herodotus; 2C: Sophocles. (Prerequisite: Greek 1C or equivalent.)

Greek 10 Greek Prose Composition (1)

Offered in fall quarter only. (Prerequisite: Greek 1C or equivalent.)

Greek 101A-101B-101C Advanced Greek (1-1-1)

Greek 101 courses deal with literary genres such as Oratory, Historiography, Lyric, Bucolic Poetry, Tragedy, and Epic. For information regarding the genres offered in 1969-70, consult with the Departmental office. (Prerequisite: Greek 2C or equivalent.)

Greek 199 Special Studies in Greek (1)

May be repeated. (Prerequisite: Permission of the Instructor.)

Latin 1A-1B-1C Fundamentals of Latin (1-1-1)

The elements of Latin grammar and syntax, with selected readings. 1C is devoted to selected readings from Catullus. (No prerequisites.)

Latin 2A-2B-2C Intermediate Latin (1-1-1)

Readings from Roman authors. 2A: Ovid; 2B: Sallust; 2C: Horace. (Prerequisite: Latin 1C or equivalent.)

Latin 10 Latin Prose Composition (1)

Offered in Winter Quarter only. (Prerequisite: Latin 2A or equivalent.)

Latin 101A-101B-101C Advanced Latin (1-1-1)

Latin 101 courses deal with literary genres such as Elegy, Satire, Historiography, Epistolography, Comedy, and Philosophy. For information regarding the genres offered in 1969-70, consult with the Departmental office. (Prerequisite: Latin 2C or equivalent.)

Latin 102A-102B-102C Proseminars in Roman Authors (1-1-1)

Latin 102 courses are devoted to advanced studies of individual Roman authors such as Vergil, Lucretius, Cicero, Tacitus, Seneca, and Petronius. For information regarding the specific authors offered in 1969-70, consult with the Departmental office. (Prerequisite: Latin 101C or equivalent.)

Latin 199 Special Studies in Latin (1)

May be repeated. (Prerequisite: Permission of the Instructor.)

Classics 141 Classical Historians and Historiography (1)

The development of historiography from its ethnographic and epic origins to its form as a major literary genre. All readings are in English. Not offered in 1969-70. (No prerequisites.)

Classics 151 Greek Literature in Translation (1)

Offered in fall quarter only. A survey of Classical Greek Literature based on readings in English translation. (No prerequisites.)

Classics 152 Latin Literature in Translation (1)

Offered in winter quarter only. A survey of Roman Literature based on readings in English Translation. (No prerequisites.)

Classics 153 Classical Mythology and Religion (1)
Spring quarter only. Study of the Greek and Roman divinities and religions in light of their impact on the pre-Christian and Christian world. (No prerequisites.)

DEPARTMENT OF ENGLISH AND COMPARATIVE LITERATURE

The student intending to major in English or Comparative Literature should obtain a copy of *Undergraduate Study in English and Comparative Literature* from the Departmental office. The student intending to major in Comparative Literature should also obtain the Comparative Literature booklet from the Director of Comparative Literature.

Undergraduate Programs

The Department of English and Comparative Literature addresses itself to the fundamental humanistic problem of value. The problem of value follows upon speculation about the nature of things. Thus the Department's fundamental literary concern is critical and theoretical. To accomplish its aims it must be neither tied to a single theoretical position nor victimized by rambling diversity. The best literary minds are 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. Though not alone in the task, the Department recognizes a continuing obligation to help all students to write the English language with clarity and grace.

The Department offers to the undergraduate essentially three areas of study:

1. **The Program in Literary Criticism,** where the emphasis is upon formal study of the variety of critical approaches and the reading and criticism principally of English and American literature.
2. **The Program in Writing,** which offers an emphasis on formal work in the writing of poetry, prose fiction, and/or drama, parallel readings, and a substantial experience in criticism. The aim of the program is to encourage the creative literary powers of the student and to introduce him to the discipline of imaginative writing. The Department also offers work in non-fiction and advanced work in expository writing.
3. **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 program is based on the assumption that important literary problems transcend national and linguistic boundaries and that texts of the literature of other languages are often as much a part of the educated American's literary background as those of his own. The aim of the program is therefore to present the student's literary heritage to him in its proper proportions, freed from the limitations of the conventional departmentalization of American universities. The listed courses in literary genres and literary history and relations are designed so that the concepts involved are transferable to other material. Thus a specialized course in a single genre will involve the general theory of all literary genres, and a course in a specific literary movement will aid in understanding the general process through which literary movements form and develop. For this reason it is not expected that even an advanced student will need to complete all of these courses, and much of his specific knowledge of world literature will be gained through independent reading or through course work in English, classical and modern languages, or other fields.

Since the Department's three areas of emphasis are not necessarily discrete entities, the student is invited to take work in all three, with an emphasis on one of the first two or a major in the third. A student of literature should recognize the importance of understanding literary problems of a theoretical nature, of developing a broad literary experience which transcends national boundaries, and of experiencing the problems of literary creation at first hand. The student should form a coherent program of courses with the help of his advisor, including experience in independent study courses, undergraduate seminars, the workshop in writing (for students electing a writing emphasis), and the comprehensive examination. The Department offers the student an opportunity to be exposed to particular points of view and to explore important problems, rather than simply to pass through a series of prescribed courses. By not stipulating a variety of prerequisites the Department invites students from all schools of the University to take advantage of its offerings, for it assumes that the experience of literature, an understanding of the verbal culture and how it has developed, and the achievement of a high level of literacy are fundamental to a liberal education.

Many of the courses offered, particularly those devoted to the historical periods of literature, may vary in specific content from year to year depending upon the plans of individual teachers. It is a principle of departmental offerings in literary periods that since no course can possibly treat all of the major authors or important works of a given age, each teacher is charged with organizing classes and readings which provide basic understandings and point in proper directions.

Graduate Programs

All those interested in graduate study in the Department should obtain the brochure on graduate programs from the Departmental office.

The Department assumes that there must be a vital intellectual relationship between professor and candidate; specific requirements for graduate degrees will be reached by consultation among members of the faculty and the candidate himself. The candidate for the Master of Arts or the Master of Fine Arts in Writing plans a program with his advisor; the candidate for the Ph.D. with his advisor and a two-man committee. Candidates for literary degrees are encouraged to study philosophy, history, foreign languages and literatures, and the fine arts.

The Department's three principal areas of work on the undergraduate level criticism, comparative literature, and the art of writing—are reflected in the graduate programs: the M.A. and the Ph.D. in English with specific attention to criticism, the M.A. and the Ph.D. in Comparative Literature, and the M.F.A. in Writing.

Candidates for all graduate degrees must meet requirements set down by the University of California. Applicants for the M.A. and Ph.D. in English must submit scores for the Graduate Record Examination (GRE) and the Advanced Test, Literature (ATL).

The Department is eager to encourage serious study and to establish a community of scholars. To these ends part-time graduate work is discouraged; 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 an enrollment in three courses each quarter. A full course load for teaching assistants is six quarter courses during the academic year.

The Department is entering into cooperation with the Department of Literature at the University of California, San Diego, which will enable graduate students at

one campus to enroll in seminars at the other. In addition, there will be occasions on which professors will travel between campuses to offer instruction.

Graduate Degrees in English

The Master of Arts in English

Each candidate for the M.A. will be assigned to a graduate advisor who will supervise his program. The M.A. may be attained by either of two methods: the student may elect to present a written essay (Plan I) in lieu of a written examination; he will then be required to defend the essay in an oral examination. The normal plan of study, however, which is Plan II, includes 1) the completion of course work, as advised, for three quarters or the equivalent; 2) the passing of a written examination upon a designated reading list; 3) demonstrated proficiency in reading a designated foreign language. All M.A. students will be required to know fundamental facts about the history of the English language. The candidate must take all of his formal work in courses, seminars, or conferences limited to graduate students.

The Master of Fine Arts in English

The Master of Fine Arts (M.F.A.) in English is a degree awarded for creative writing in poetry, the short story, the novel, or drama. The M.F.A. program is based on the assumption that the best way for a promising writer to develop is to bring him together with other writers and encourage him to write.

The M.F.A. degree is normally conferred upon the completion of a two-year residence. During each of his quarters in the program the candidate will be enrolled in a creative writing workshop which will constitute two-thirds of his course load for that quarter. If he intends to teach after receiving his degree, the candidate will plan the rest of his program in such a way as to insure that he will be qualified to teach courses in literature.

In addition to his course work, the candidate will complete a book-length thesis of creative writing. He will also be required to pass an examination on a reading list of literary works in the genre of his own writing.

The Doctor of Philosophy in English

The program for the Ph.D. in English normally includes about two years of full time enrollment beyond the B.A., three courses of which will normally be in the graduate teaching program; proficiency in the reading, normally, of two acceptable foreign languages; the dissertation; and satisfactory performance on designated examinations.

The languages acceptable depend upon the nature of the student's program as determined by his advisors. Reading competence in one of these languages must be established in the first quarter of residence. Competence in the other language must be established well before the general examinations. Satisfactory work in courses in which literary translation is actually practiced must fulfill at least one of the language requirements. The necessity of competence in languages such as Old English is determined by the advisory committee in the light of the student's total program. All candidates for the Ph.D. will be required to know fundamental facts about the history of the English language and basic linguistic theory.

Upon completion of course work the student normally presents himself for 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 his own choices for the examination, but the choices must enable him to demonstrate breadth of knowledge and literary understanding, and therefore must be approved by his advisory committee. Certain alternatives to this series of examinations may be allowed in special cases.

As soon after completion of the general examination as is practicable, the student presents an essay to his advisory committee and is orally examined upon it and related subjects. Out of this essay should grow the dissertation. At this point the student is admitted to candidacy for the degree. Submission and acceptance of the dissertation complete the work for the Ph.D. All work for the Ph.D. degree must be in courses, seminars, or conferences limited to graduate students.

Graduate Degrees in Comparative Literature

There are at least four avenues by which the UCI student may approach graduate work in Comparative Literature; students with bachelor's degrees from other institutions should have equivalent training:

a) The undergraduate major in Comparative Literature described above.
b) A normal English major in criticism, provided a sufficient background in at least one foreign language is gained. A beginning on a second foreign language is highly recommended.
c) A normal major in drama, with same provisos as (b).
d) A normal major in a foreign language, provided a sufficient general background in world literature is gained.

Make-up work will be required before graduate studies can begin if one of these avenues has not been taken.

The Master of Arts in Comparative Literature

The student proposing himself for the degree of Master of Arts should complete course work for the equivalent of three quarters. This course work should include CL 220 *(Problems in Translation)* with 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. The student is offered the option, as in the M.A. in English, of Plans I and II, but Plan II is recommended. 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.

The Doctor of Philosophy in Comparative Literature

Details of the planned doctoral program in Comparative Literature may be obtained from the Director. 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"), which corresponds to the field of particular interest he imagines for himself as a post-doctoral scholar. The requirements for the doctorate also include an area of competence in literary theory and practical criticism.

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

HAZARD ADAMS, *Professor of English* (on leave fall and winter quarters)
HOWARD S. BABB, *Professor of English and Chairman of the Department*
JOSEPH N. BELL, *Lecturer in English*
JAMES L. CALDERWOOD, *Associate Professor of English* (on leave fall and winter quarters)
PETE E. CLECAK, *Assistant Professor of English*
JESSE GELLRICH, *Acting Assistant Professor of English*
HARVEY GROSS, *Professor of English*
OAKLEY HALL, *Professor of English* (on leave winter quarter)
DONALD HEINEY, *Professor of Comparative Literature and Director of the Program in Comparative Literature*
RENÉE RIESE HUBERT, *Professor of Comparative Literature and French*
MARY KEY, *Assistant Professor of English*
MURRAY KRIEGER, *Professor of English and Director of the Program in Criticism*
FRANK LENTRICCHIA, *Assistant Professor of English*
JAY MARTIN, *Professor of English and American Studies*
JAMES MCMICHAEL, *Assistant Professor of English*
ROBERT L. MONTGOMERY, *Professor of English*
ROBERT L. PETERS, *Professor of English*
BARBARA L. REED, *Acting Assistant Professor of English*
EDGAR T. SCHELL, *Assistant Professor of English and Vice Chairman of the Department* (on leave spring quarter)
STEPHEN SHAPIRO, *Assistant Professor of English* (on leave fall quarter)
MYRON SIMON, *Associate Professor of English and Supervisor of Teacher Education*
HAROLD TOLIVER, *Professor of English*
SHIRLEY VAN MARTER, *Assistant Professor of English*
ALBERT O. WLECKE, *Assistant Professor of English*
CHARLES P. WRIGHT, JR., *Assistant Professor of English and Director of the Writing Center*
MAX WEI YEH, *Assistant Professor of Comparative Literature*

Undergraduate Courses in English and Comparative Literature

Subject A: Subject A, a remedial course taken for no credit in the fundamentals of writing, is required of all students who, upon entrance, do not satisfy the Subject A requirement by examination. The course includes the writing of papers in addition to drill in sentence and paragraph construction, diction, punctuation, grammar, and spelling. Satisfaction of the Subject A requirement is prerequisite to graduation and to all courses in English. The fee for taking the course is $45.00. For a description of the Subject A requirements, refer to page 10.

E 5 Thought and Process in Writing
An introduction to the thought processes basic to all writing, the course rejects the traditional distinction between creative and expository writing and assumes that the imagination, as well as the logical powers must be employed for the production of the successful essay. Students enrolling in English 5 are expected to continue into English 10.

E 10 The Language of Argument (1)
The art of writing the persuasive essay, with emphasis on logic and rhetoric. Prerequisite: English 5.

E 15 Approaches to Literary Language (1)
The writing of essays with respect to readings in modern literature and thought. Prerequisite: English 10.

E 20 The Nature of Drama: Structure and Style (1)
(Same as Drama 20.)

E 23 The Nature of Poetry (1)
The reading of poetry with special attention to its variety, its conventions, and forms.

E 24 The Nature of Fiction (1)
The reading of prose fiction with special emphasis upon awareness of literary techniques.

E 25 Shakespeare (1)
An introduction to Shakespeare's plays. (Same as Drama 22.)

E 26 Literature and Society (1)
An analysis of the social basis of popular and serious contemporary American literature.

WR 30 The Art of Writing: Poetry (1)
Practice in the writing of poems, evaluations of student manuscripts, and parallel readings.

WR 31 The Art of Writing: Prose Fiction (1)
Practice in the writing of prose fiction, evaluation of student manuscripts, and parallel readings.

WR 32 The Art of Writing: Drama (1)
Practice in the writing of drama, evaluation of student manuscripts, and parallel readings.

WR 38 The Art of Writing: Non-Fiction and Journalism (1)
Practice in the writing of non-fiction and news articles, evaluation of student manuscripts, projects.

WR 39 Expository Writing (1)
Work toward developing further the ability to write clear and effective prose. Prerequisite: English 10 or consent of instructor.

CL 40A-B-C Development of Drama (1-1-1)
(Same as Drama 40A-B-C.)

CL 50A-B-C The Literary Tradition (1-1-1)
The reading of selected major works in the western literary tradition.

CL 100A Undergraduate Seminar in Literary Theory and Practice (1)
Open to upper division majors in English and Comparative Literature only. Sections limited to fifteen students. Spring or early fall enrollment with the course director is necessary to reserve space for specific sections. Each instructor announces a topic that joins theoretical speculation about literature and the practical criticism of individual literary texts. Topics are announced during the spring quarter preceding the year in which the course is given.

CL 100B Undergraduate Seminar in Literary History (1)
Open to upper division majors in English and Comparative Literature only. Sections limited to fifteen students. Spring or early fall enrollment with the course director is necessary to reserve space for specific sections. Each instructor announces a period of literary history or a major author to which the course will be devoted.

L 100 Introduction to Linguistics (1)
(Same as Linguistics 100.)

CL 101 Lectures in Literary Theory and Criticism (1)
Required of junior majors in English and Comparative Literature, but open to non-majors as well. A comprehensive series of lectures and discussions devoted to the theoretical dimensions of literary criticism as reflected in major theorists from Plato and Aristotle to the present.

E 102 Undergraduate Reading Program in English Literature (1)
Required of English majors, but qualified non-majors may enroll with permission. This course is designed to ground the student in the methods and discipline of independent literary inquiry. He is provided with a detailed syllabus of readings in a particular literary period, genre, author, or mode; a description of the aims and methods of the course; a bibliography of important reference works; a list of specific topics for term papers; and a sample of the examination to be given at the end of the term. At mid-term the instructor meets with students for several hours in order to summarize, discuss, and respond to questions about the material under study. A similar meeting will take place at term's end. Otherwise, the student is engaged in fully independent study.

CL 102 Undergraduate Reading Program in Comparative Literature (1)
Required of Comparative Literature majors, but others may enroll with permission, as advised. May be taken more than once, provided the topic changes. See E 102 above for course description.

E 103 Undergraduate Lectures in English Literature (1)
Open to all students. 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.

CL 103 Undergraduate Lectures in Comparative Literature (1)
Open to all students. 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.

CL 104 The Interdisciplinary Course (1)
Open to all students. May be taken more than once, provided the topic changes. Instructors offering this course will announce interdisciplinary topics of various kinds (e.g., literature and politics, literature and religion, literature and science, literature and the other arts) well in advance of enrollment and will hold discussions as announced.

WR 109 Non-Fiction and Journalism (1)
By consent.

WR 111 Poetry Writing (1)
By consent.

WR 112 Playwriting (1)
By consent.

WR 113 Novel Writing (1)
By consent.

WR 115 Conference in Writing (1)
Majors in writing program; others by consent. May be repeated.

WR 139 Advanced Expository Writing (1)
For candidates for the teaching certificate.

L 184 History of English Language (1)
L 186 Modern English Grammar (1)
L 187 Studies in Linguistics (1)
E 188 Reading and Conference (1)
By consent, by arrangement. May be repeated.

CL 188 Reading and Conference (1)
By consent, by arrangement. May be repeated.

The Senior Comprehensive Examination. Satisfactory work on this examination, which must be taken in the second quarter of the senior year, is a requirement for graduation with a degree in English. A similar examination is required for students in Comparative Literature. Students may take these examinations no more than three times.

Graduate Courses

All graduate courses may be repeated when the topic varies.

L 200 Studies in the English Language (1)

L 201 Studies in Linguistics (1)

E 210 Studies in Literary History (1)

CL 210 Comparative Studies (1)

E 220 Studies in Criticism (1)

CL 220 Problems in Translation (1)

E 225 Studies in Literary Genres (1)

E 230 Studies in Major Writers (1)

E 235 Methods of Literary Scholarship (1)

WR 250 Graduate Writers' Workshop (2)
By consent.

WR 251 Writing in Conference (½ to 2)
By consent.

E 290 Reading and Conference (½ to 1½)
By consent.

CL 290 Reading and Conference (½ to 1½)
By consent.

E 291 Guided Reading Course

CL 291 Guided Reading Course

E 299 Dissertation Research

CL 299 Dissertation Research

E 399 Seminar in University Teaching (1)
By consent. Ph.D. candidates in English and in Comparative Literature are required to enroll three times in English 399 before taking the doctorate. Except for teaching assistants, however, no student will enroll in this course during his first year of graduate study. (Students enrolling with an M.A. from another institution should plan to take 399 twice their first year.) Graduate teachers will be assigned by the Graduate Committee (a) to teach seminar courses in the freshman English program, (b) to serve as interns in sophomore literature courses, or (c) to serve as interns in upper division courses. MFA candidates in their second year of study are not required to take this course, but may apply to the Graduate Committee to do so. Students with prior teaching experience at the college level may petition the Graduate Committee to waive or reduce this requirement.

DEPARTMENT OF FRENCH AND ITALIAN

Undergraduate Program

The main objectives of the program in French are:

1. To develop competence in understanding, speaking, reading and writing French.
2. To provide through the knowledge of French the valuable experience of understanding and appreciating the literature and culture of another people as well as seeing one's own culture in a new light.

All courses, unless specifically stated, are taught in French. In the basic courses, the use of language laboratory facilities helps develop the oral-aural language skills. At the end of the first year, students will have attained mastery of the basic structure of the language and ability to converse on everyday topics.

At the intermediate and advanced levels, the language laboratory will continue to play an important role in improving the student's command of the foreign language. In the second year, emphasis will be put on gradually raising the level of the student's ability to read and write in the foreign language. A third-year course of two quarters will stress composition, and an optional fourth-year course will deal with stylistics. Further, a course in phonetics will aim to perfect pronunciation as well as to introduce dialectal variants. Courses in literature will emphasize the analysis and appreciation of complete literary works rather than factual knowledge of literary history.

Students will be placed in French and Italian 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. Students who present two years of high school French or Italian may not enroll for credit in French or Italian 1A; students who present three years of high school French or Italian may not enroll for credit in French or Italian 1A or 1B; students who present four years of high school French or Italian may not enroll for credit in French or Italian 1A, 1B, or 1C.

The requirements for the major in French are courses 10A-B, 11, 12A-B-C, 110, Linguistics 100 and six upper division courses in literature.

Students are encouraged to participate in programs of study abroad during the summer and the junior year.

Graduate Program

The Master of Arts

The candidate is expected to have the equivalent of our undergraduate major. He must take a minimum of eleven courses, eight on the graduate (200) level, at least six in literature, and at least two in linguistics. 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. A knowledge of the fundamentals of Latin (equivalent to the level attained at the end of course 1B) is a prerequisite for the courses in the History of French and Romance Linguistics.

The Doctor of Philosophy

A. *Language Requirements*

a. A reading knowledge of two foreign languages, one of which must be a Romance language and the other German or another language relevant to the student's area of specialization and subject to the approval of the Department.

b. The fundamentals of Latin (the equivalent of UCI courses 1A and 1B) is a prerequisite for the courses in Romance Linguistics and the course in the History of the French language.

B. *Course Requirements*

a. Two graduate courses in French linguistics, one diachronic and the other synchronic.

b. A minimum of 18 graduate courses or seminars in French beyond the B.A.

c. A minimum of 3 courses outside the Department in areas related to the field of specialization.

d. Two of the above courses in (b.) or (c.) should be:
a course in stylistics, and
a course in literary criticism.

C. *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, under supervision at UCI, one course in each of the three quarters.

D. *Comprehensive Examination*

The student is admitted to candidacy if he passes by a majority vote an oral examination administered by a Candidacy Committee appointed by the Graduate Council. The Candidacy Committee is composed of five members, of whom three will be from the Department. The oral examination will be preceded by a written examination as follows:

The student will be examined,

a. on 5 of the following 6 periods of French literature:
1) medieval
2) 16th century
3) 17th century
4) 18th century
5) 19th century
6) 20th century

OR

four of these periods plus the development of a single literary genre through all periods of French literature.

b. on a given literary movement (e.g. romanticism, baroque, etc.) in a non-French literature.

E. *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. 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

RICHARD L. REGOSIN, *Associate Professor of French and Chairman of the Department*
HOWARD A. APPEL, *Supervisor of Teacher Education*
JACQUES BOREL, *Regents Professor* (fall quarter)
ANDREE G. DARLING, *Visiting Scholar*
HENRI DIAMENT, *Assistant Professor of French and Associate Director, E.A.P., Bordeaux*
SERAFINA S. HAGER, *Associate in Italian*
JUDD D. HUBERT, *Professor of French*
ROGER M. ISAACS, *Associate in French*
RENÉE RIESE HUBERT, *Professor of French and Comparative Literature*
JEAN-PAUL JANNOT, *Acting Assistant Professor of French*
ALICE M. LABORDE, *Assistant Professor of French*
SYDNEY S. LEVY, *Associate in French*
THÉRÈSE B. LYNN, *Lecturer in French*
FELICIA D. O'CONNELL, *Associate in French*
FRANCO TONELLI, *Assistant Professor of French and Italian*

Lower Division Courses in French

1A-1B-1C Fundamentals of French (1-1-1)
The fundamentals of the language will be presented audio-lingually five hours a week in the classroom and two hours a week in the language laboratory. Graded readers will be introduced as early as possible.

2A-2B-2C French Reading and Composition (1-1-1)
Prerequisite: Normally three years of high school French or one year of college French. Reading of properly graded material of cultural significance. Oral and written composition based on the readings. Four hours a week in the classroom and assignments in the language laboratory when appropriate.

10A-10B Advanced Composition (1-1)
Prerequisite: Completion of French 2C or the equivalent. Writing compositions on a variety of themes, motivated and prepared in the classroom, and arranged in order of difficulty. Review of selected grammatical topics.

11 French Phonetics (1)
Taught partly in English.

12A Introduction to Theater (1)
12B Introduction to Novel (1)
12C Introduction to Poetry (1)
13 French Conversation (1)

Upper Division Courses in French

The prerequisite for all upper division literature courses is French 12A, 12B, 12C or the equivalent.

105 Advanced Composition and Stylistics (1)
110 French Civilization (1)
116A-116B-116C Sixteenth Century French Literature (1-1-1)
117A-117B-117C Seventeenth Century French Literature (1-1-1)

118A-118B-118C Eighteenth Century French Literature (1-1-1)
119A-119B-119C Nineteenth Century French Literature (1-1-1)
120A-120B-120C Twentieth Century French Literature (1-1-1)
130 Senior Seminar in French Literature (1)
May be repeated.

131 Senior Seminar in Linguistics (1)
May be repeated.

150A-150B-150C French Literature in Translation (1-1-1)
199 Special Studies in French (1)
May be repeated.

Graduate Courses in French

200A-200B Romance Linguistics (1-1)
Historical development of modern Romance languages from Vulgar Latin. Taught in English
Prerequisite: Fundamentals of Latin; knowledge of French or Spanish or Italian.

201 History of the French Language (1)
Prerequisite: Fundamentals of Latin.

202 Contrastive French Phonology (1)
203 Contrastive French Morphology and Syntax (1)
204 Stylistics (1)
205 Methods of Literary Research (½)
206 Literary Criticism (1)
210A-210B-210C Medieval Literature (1-1-1)
216A-216B-216C Renaissance Literature (1-1-1)
217A-217B-217C Classicism (1-1-1)
218A-218B-218C Enlightenment (1-1-1)
219A-219B-219C Romanticism (1-1-1)
219D The Realistic Novel (1)
219E Zola and the Naturalist Novel (1)
220A-220B-220C Modern French Novel (1-1-1)
221A-221B-221C Modern French Poetry (1-1-1)
222A-222B Modern French Theatre (1-1)
230* Studies in dramatic literature (1)
231* Studies in fiction (1)
232* Studies in non-fictional prose (1)
233* Studies in poetry and poetics (1)
240* Studies on a major writer (1)
299* Research in French Language and Literature (1)
*May be repeated

Lower Division Courses in Italian

1A-1B-1C Fundamentals of Italian (1-1-1)
The fundamentals of the language will be presented audio-lingually five hours a week in the classroom and two hours a week in the language laboratory. Graded readers will be introduced as early as possible.

2A-2B-2C Italian Reading and Composition (1-1-1)
Prerequisite: Normally three years of high school Italian or one year of college Italian. Reading of properly graded material of cultural significance. Oral and written composition based on the

readings. Four hours a week in the classroom and assignments in the language laboratory when appropriate.

DEPARTMENT OF GERMAN AND RUSSIAN

Undergraduate Program

This department offers a major in German, and instruction in first-, second-, and third-year Russian language and literature. A major in Russian is envisioned for the near future.

The objectives are to obtain a master of the spoken and written languages, and of the culture primarily through literature. In the basic courses, oral-aural language skills are stressed, and practice in the language laboratory is required. First-year courses will meet in the classroom five days a week, and in the language laboratory twice a week. Most courses, at all levels, are taught in the target language.

Students will be placed in foreign language 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. Students who present two years of high school foreign language may not enroll for credit in Foreign Language 1A; students who present three years of high school foreign language may not enroll for credit in Foreign Language 1A or 1B. Students who present four years of high school foreign language may not enroll for credit in Foreign Language 1A, 1B, or 1C.

The Master of Arts in German

The candidate is expected to have the equivalent of our undergraduate major. He must take a minimum of eleven courses, eight of which must be exclusively graduate (200 level). Six of the eleven courses must be in literature and two in linguistics. Proficiency (defined as the equivalent of the level attained at the end of course 2C) in a foreign language other than German 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 student and will also test the student's ability to express himself correctly in the major foreign language. No thesis is required.

German and Russian Faculty

HERBERT LEHNERT, *Professor of German and Chairman of the Department*
THEODORE FIEDLER, *Acting Assistant Professor of German*
JARED GORDON, *Acting Assistant Professor of Russian*
RAINER GRENEWITZ, *Acting Assistant Professor of Russian*
JOYCE HOUDEK, *Associate in Russian*
MAY LOH, *Associate in Chinese*
MILAN LOUPAL, *Associate in Russian*
BERT NAGEL, *Professor of German*
WILM PELTERS, *Assistant Professor of German*
PAUL R. SCHIMMELPFENNIG, *Assistant Professor of German*
ALAN SHATERIAN, *Acting Assistant Professor of German*

Courses in Chinese

The Department of German and Russian also administers the program in Chinese.

K1A-1B-1C Fundamentals of Mandarin Chinese (1-1-1)

A self-instructional course in the fundamentals of Mandarin Chinese for highly motivated students. Prerequisite: The consent of the examining professor.

2A-2B-2C Chinese Reading and Composition

Prerequisite: Chinese 1A-1B-1C or the equivalent. Reading of properly graded material of cultural significance. Oral and written composition based on the readings. Five hours a week in the classroom or laboratory.

Lower Division Courses in German

1A-1B-1C Fundamentals of German (1-1-1)

The fundamentals of the language will be presented audio-lingually five hours a week in the classroom and two hours a week in the language laboratory. Graded readers will be introduced as early as possible.

2A-2B-2C German Reading and Composition (1-1-1)

Prerequisite: Normally three years of high school German or one year of college German. Reading of properly graded material of cultural significance. Oral and written composition based on the readings. Four hours a week in the classroom and assignments in the language laboratory when appropriate.

10A-10B Advanced Composition (1-1)

Prerequisite: Completion of German 2C or the equivalent. Writing compositions on a variety of themes, motivated and prepared in the classroom, and arranged in order of difficulty. Review of selected grammatical topics. Four classroom meetings per week.

11 German Phonetics (1)

Prerequisite: German 10B.

12A Introduction to Theater (1)
12B Introduction to Prose Fiction (1)
12C Introduction to Poetry (1)

Prerequisite: Completion of German 2C or the equivalent.

Upper Division Courses in German

The prerequisite for all upper division literature courses is German 12A, 12B, 12C, or the equivalent.

101 The Structure and History of the German Language

An introduction to the syntax, morphology and phonology of German, both synchronic and diachronic, with a survey of the external history of the German Standard language and dialects.

105 Advanced Composition and Stylistics (1)
117A German Literature from the Beginning of the Reformation (1)
117B From the Reformation to Lessing (1)
118A-118B-118C Lessing, Goethe, Schiller (1)
119A-119B-119C Romanticism; Drama, Prose of the 19th Century (1)
120A-120B-120C Drama, Prose, and Lyric of the 20th Century (1)
150A-150B-150C German Literature in Translation (1-1-1)
199 Special Studies in German Literature (1)

May be repeated.

Graduate Courses in German

200A Gothic
Studies in the grammar of the Gothic language based on readings of the extant texts, with emphasis on the linguistic position of Gothic among the Germanic languages.

200B Old German
Studies in the grammar and vocabulary of the early High and Low German dialects. Analysis of the oldest German literary works.

201A History of the German Language (1)

201B Middle High German (1)

202 Contrastive German Phonology (1)

203 Contrastive German Morphology and Syntax (1)

205 Methods of Literary Study
Studies in literary analysis, interpretation, and evaluation including the fundamentals of bibliographical research.

217A German Literature of the Middle Ages (1)

217B Renaissance, Reformation, and Baroque Literature (1)

217C German Literature from Weise to Lessing (1)

218A-218B-218C The Enlightenment, The "Sturm und Drang" Period, The Classical Period (1-1-1)

219A-219B-219C Early Nineteenth Century Literature, Nineteenth Century Drama, Nineteenth Century Prose (1-1-1)

220A-220B-220C Twentieth Century German Literature: Drama, Prose, Lyric (1-1-1)

299 Research in German Language and Literature (1)
May be repeated.

Lower Division Courses in Russian

1A-1B-1C Fundamentals of Russian (1-1-1)

2A-2B-2C Second Year Russian (1-1-1)

10A-10B Russian Composition and Grammar Review (1-1)
Prerequisite: Completion of Russian 2C or the equivalent. Writing compositions on a variety of themes, motivated and prepared in the classroom, and arranged in order of difficulty. Review of selected grammatical topics. Four classroom meetings per week.

11 Russian Phonetics (1)
Prerequisite: Russian 10B.

20 Russian Civilization (1)

Upper Division Courses in Russian

101A-101B Advanced Composition.
A course devoted to advanced problems of composition and style.

101C History and Structure of Russian.
The purpose of this course is to provide a structural description of the language, which will aid in improving language skills and in possible future teaching, and will provide a basis for future graduate work in linguistics.

150A-150B-150C Russian Literature in Translation (1-1-1)

199 Special Studies in Russian (1)

Courses in Swedish

The Department of German and Russian also administers the program in Swedish.

K1A-K1B-K1C Fundamentals of Swedish (1-1-1)
A self-instructional course in the fundamentals of Swedish for highly motivated students who have already studied two years of another foreign language at the college level. Students will work at their own speed in the language laboratory and will be tested in the middle and at the end of each quarter.

DEPARTMENT OF HISTORY

Undergraduates and graduate students intending to specialize in history should obtain a copy of *Studies in History* from the departmental office.

Undergraduate Program

History studies all recorded expressions of human activity. It explains the political experiences of a nation at home and abroad. It surveys the social and economic scene, artistic expressions, intellectual achievements, scientific progress, and religious beliefs. Thus the study of history combines fascination for the quality of men and their times with the mature demands of a probing intellectual discipline.

At UCI we take for granted that the student will seek to verify factual information and relate it to the proper context of time and place. The history program goes on to make explicit what is sometimes left only vaguely implicit in history study and teaching. We present our body of knowledge with a focus on significant varieties of method: the broad overview, historiography, different forms of thematic narrative or topical analysis, the comparative approach, and the interplay of independent study with group research. With this basic understanding in hand, the student is prepared to go on learning for himself.

The program emphasizes how the historian thinks and works. Students should hear, read, write, and talk about history. Small group discussions are a feature at every level, from freshman sections to graduate colloquia. History majors should select other humanistic studies, such as languages, literature, or philosophy of history. Study in depth in social sciences or fine arts is strongly recommended. Finally, work with a foreign language of the student's choice is often related to Comparative History and the Senior Project.

The Civilization Surveys are open to all students in the university. History majors may select any two of these sequences, preferably civilizations of strongly contrasting character and development. All majors should open a "window on the world" to allow appreciation of other peoples, cultures, and points of view. Subsequent work in the major should build on one of these broad overviews, so that the student progresses logically from introductory study to more advanced work.

Upper division courses are also open to other students, though in some instances permission of the instructor is required. History majors begin advanced study with two courses in historiography: one of these presents the work of great historians in different societies; the other examines the broad spectrum of historical method, from humanistic insight to scientific analysis as illustrated in a single subject with varied facets.

History majors further select a minimum of four courses from a wide variety of offerings presenting history by period, theme, or topic—intensifying their interest from an earlier Civilization Survey. Each student will also select one course, at least partially related to his area of emphasis, illuminating the opportunities and limita-

tions of the comparative method. The undergraduate program culminates in a Senior Project. Here the student will spend the first quarter in background independent study; the second quarter stresses individual research related to similar topics pursued by other students in a small proseminar.

Graduate Program

The Department strives to supplement the traditional concerns of graduate work in history with new emphases in several areas:

1. the historiographical and philosophical bases of the subject;
2. the comparative and topical approaches to analysis;
3. the use of techniques and insights developed by sister disciplines;
4. the development of teaching experience on the university level.

The objective of the program is to provide future historians with a range of skills, attitudes, and insights useful in understanding and explaining the significance of the past in a rapidly changing world. It is our conviction that historians must combine their long-continuing interest in narrative studies with an increased concern for precision in method, relevant generalization, and effective communication, if they are to achieve the end in view.

The Master of Arts in History

1. *Requirements for Admission*

An applicant for admission to the Master of Arts Program in History should have a Bachelor's degree with the equivalent of an undergraduate major in that subject. Nonetheless, 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. *Admission to the M.A. program does not automatically certify acceptance for later work on the doctoral level.* Admission to the Ph.D. program is a separate decision made on the basis of performance for the M.A.

Normally, 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 at least three letters of recommendation and Graduate Record Examination scores in Verbal and Mathematical Aptitude as well as Advanced History. Transfer credit from other universities is limited to one graduate course. Students living in Southern California must arrange to come to Irvine for an interview with the Chairman of the Department or the Coordinator of Graduate Advising.

2. *Language Requirements*

Except in the case of students of American history, a reading knowledge of one useful foreign language is required for the Master of Arts degree. The individual is expected to demonstrate this competence by achieving a score of 450 or better in the appropriate ETS language examination, given four times a year (February, April, August, and October) at this and other institutions. He may not enroll in a seminar requiring a foreign language, nor may he take the M.A. Field Examination, until he has met the language requirement. If he has not done this by the end of his third quarter in residence, the Department will review his record with a view to determining whether or not he shall be allowed to continue.

A student of American history, *with his adviser's permission,* may choose to substitute three upper division or graduate courses in communications science, statistics, or comparable studies for his Master's language. If he wishes to count courses which he has taken elsewhere in fulfillment of this requirement, he will be asked to pass special examinations in the subjects specified.

3. *Program of Study*

After consulting with the Coordinator of Graduate Advising, the student will work out his program with, and have it approved by, his assigned Departmental adviser. Individuals hoping to proceed on to the Ph.D. should look ahead to their ultimate subject emphases so that they may fit their work for the M.A. more usefully into their total program. It will probably be desirable, for example, for such a student to select a field of examination for the M.A. which is closely related by area, period, or topic to his intended major field for the Ph.D.

During the Master's year, the student will prepare himself for a Field Examination in one of the following:

America to 1840
America since 1840
Great Britain, 1485-1714
Great Britain since 1714
Europe since 1815

The M.A. program consists of nine courses, all of which must be satisfactorily completed:

Two courses in Historiography (taken in succession)
Two courses in a Research Seminar (taken in succession)
Three courses in Directed Reading in the Field of Examination
One Colloquium in the Field of Examination
One additional course related to the Field of Examination

4. *Time Limits*

The Department encourages M.A. students to elect a full-time program, which normally can be completed in three quarters. Part-time students may have a maximum of six academic quarters to satisfy their requirements, but they are urged to proceed as rapidly as possible. Exceptions to these time limits require the approval of the Department Chairman.

5. *The Field Examination*

This examination will normally be given twice a year, in December and May. It will be a four-hour written examination, focusing on the significant events, ideas, and institutions of the chosen field and will require knowledge of the more important historical works and interpretations.

The Doctor of Philosophy in History

1. *Requirements for Admission*

To apply for admission to the doctoral program, the student should have completed the M.A. in History at Irvine or equivalent work at another institution. Since the Master's and Doctorate are closely coordinated at UCI (the individual's first year of graduate work being designed to prepare him for independent study), it is desirable that a student intending to obtain the Ph.D. here should begin his graduate work in this program. Yet the Department will accept doctoral candidates who have achieved their M.A.'s elsewhere and can provide evidence of superior accomplishment in previous academic work. Moreover, those applicants who have not previously done so must take the Graduate Record Examination in *both* the Aptitude and Advanced History sections. The results of this test, together with the student's record, letters, and *interview where possible,* will be used in evaluating his application for admission. Part-time enrollment will be possible only under very unusual circumstances.

2. *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 first quarter in the program. This is done by achieving a score of at least 450 on the appropriate ETS language examination, given four times a year (February, April, October, and December) at this and other institutions. Scores of examinations taken more than two years prior to admission to the doctoral program will not be accepted as satisfying this requirement. 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 requirements" (see paragraph 3, below) and will not be subject to the one-quarter time limit on achieving a language competence.

3. *Further Requirements*

These depend upon the field of emphasis which the student selects:

a. An individual with a major field in United States or British History may *either* demonstrate a reading knowledge of a second useful foreign language (either by achieving an ETS score of 450, or by passing a language test designed by his adviser),
or, with his adviser's permission,
complete, as a doctoral student, three upper division or graduate courses in an area of study (e.g., communications science, computer work, statistics, linguistic analysis) that will provide tools useful in mastering his major field. These courses would be taken in addition to those described in paragraph 4, below, and should not lie within the student's major, minor, or outside fields as defined in paragraph 4a, below. Any student who wishes to count courses which he has taken previous to his UCI graduate work in fulfillment of this requirement will be asked to pass special examinations on the methods in question.

b. An individual with a major field in a non-American or non-British area must demonstrate a reading knowledge of a second useful foreign language.

No student may enroll in a seminar requiring a foreign language without having passed his reading examination in that language. Any student who has not satisfied his language and/or language substitute requirements by the end of the quarter before his qualifying examinations must be prepared to take a leave of absence from the doctoral program in order to devote himself fully to the task.

4. *Program of Study*

After consulting with the Coordinator of Graduate Advising, the student will be assigned a departmental adviser who will be responsible for approving his fields of study, helping him to select consulting faculty, and after the student has passed his qualifying examinations, recommending the director of his dissertation.

The student will prepare himself for qualifying examinations in four fields: a major, a related minor, a second minor, and a field in related aspects of a discipline outside History.

a. The major and minor fields will be either defined topically or chosen from among the historical periods regularly offered (various combinations of themes and periods may be worked out). In devising topical fields other than that in the History of Science (e.g., History of Democratic Institutions, War in the Modern World, Comparative Industrialization, Comparative Social Change) a student must obtain the consent of *both* his adviser and the Coordinator of Graduate Advising. With such programs, care must be taken to insure that instructors are available, and that an adequate concern for historical continuity is built into the approach.

b. Four historical periods will be offered as major fields by the Department in 1969-70:

America since 1840
Europe since 1815
Great Britain, 1485-1714
Great Britain since 1714

c. Comparable periods will be offered as minor fields in Ancient, Medieval, and early Modern European History; as well as in American and Latin American History.

Course requirements for doctoral students include the following:

a. One two-quarter seminar in the major field (normally taken during the first and second quarters of the first doctoral year). Students who have taken a seminar at Irvine on the M.A. level may, *with the permission of the major field adviser,* substitute two quarters of "Directed Research" (History 291) for this doctoral seminar.

b. One upper division course in comparative history, supplemented with readings and special assignments from the instructor. In those cases in which no course is offered which relates to the student's major field, this requirement may be fulfilled by registering for a specific "Directed Reading" course (History 290) in comparative studies, administered by the Coordinator of Graduate Advising.

The remainder of the student's program in each quarter of his residence will consist of those colloquia, seminars, and courses in "Directed Reading" (after passing the qualifying examinations, "Directed Research") with which he chooses to prepare himself in his major and minor fields and with which he can attain the normal academic load of three courses per quarter. (For a Teaching Assistant or other student who is devoting at least half-time to teaching, five courses per academic year is the normal load.) It should be noted that university residence requirement for the Ph.D. is six quarters, and that this may be fulfilled either before or after the qualifying examinations. University regulations stipulate, however, that a student must be registered during all autumn, winter, and spring quarters unless he has petitioned for and been granted a leave of absence.

Students with an M.A. from another institution will be required to take two quarters of graduate historiography (see the Master's program) if they have not previously had the equivalent.

5. *Teaching Requirements*

Under the direction of his adviser, every doctoral student will be given at least some experience in lecturing, discussion-group leadership, preparation of examinations, and planning a course. Upon completion of the student's endeavors in these areas, the adviser is responsible for preparing a statement of evaluation which will be entered in the student's dossier. Students who have had, or are having experience as Teaching Assistants may be excused from one or more of these requirements.

6. *The Qualifying Examinations and Dissertation*

After completion of course and other preparatory work (normally in six quarters) the student presents himself for written examinations in his major and minor fields and a qualifying oral examination touching upon his entire program (save the second minor), but with certain previously determined emphases. Upon demonstrating these competencies the student is advanced to candidacy for the Ph.D. and proceeds with his dissertation. The program culminates in a final oral examination over the subject area of the dissertation prior to the final acceptance of the work.

History Faculty

GERALD T. WHITE, *Professor of History and Acting Chairman of the Department*
KENNETH P. BAILEY, *Lecturer in History and Education*
JOHN P. DIGGINS, *Associate Professor of History*
RICHARD I. FRANK, *Assistant Professor of History and Classics*
LAMAR MOTT HILL, *Assistant Professor of History*
KARL G. HUFBAUER, *Lecturer in History*
JON S. JACOBSON, *Assistant Professor of History*
ROBERT H. LUCAS, *Assistant Professor of History*
ARTHUR J. MARDER, *Professor of History*
SAMUEL C. MCCULLOCH, *Professor of History and Dean of Humanities*
HENRY CORD MEYER, *Professor of History*
KEITH L. NELSON, *Assistant Professor of History*
SPENCER C. OLIN, JR., *Associate Professor of History*
MARK S. POSTER, *Acting Assistant Professor of History*
J. ALAN ROGERS, *Assistant Professor of History*
RONALD G. WOODBURY, *Assistant Professor of History*

Undergraduate Courses in History

Civilization Surveys (open to all students)

40A-40B-40C Western Traditions (1-1-1) fall, winter, spring
The more important ideas, institutions, and events in European History that have moulded the Western way of life.
Fall: from the ancient Near East to the fall of Rome;
Winter: from feudal origins to the age of absolutism;
Spring: from the Enlightenment to the present.

50A-50B-50C American Thought and Culture (1-1-1) fall, winter, spring
American social and intellectual history, focusing on the ideas, systems of thought, and individuals most prominent in the formation of American society.
Fall: from the Colonial to the Early National Period, 1607-1840;
Winter: nineteenth-century America, 1840-1900;
Spring: twentieth-century thought and culture.

60A-60B-60C British Traditions and Institutions (1-1-1)
Not offered 1969-70.
The men and events, literary and artistic works, ideals and institutions which best reveal or most deeply influenced British life.
Fall: Roman Britain to 1688;
Winter: the Glorious Revolution to 1901;
Spring: the twentieth century.

70A-70B-70C Latin American Civilization (1-1-1) fall, winter, spring
A general view of the cultural, economic and political development of Spanish America and Brazil from 1492 to the present.
Fall: the colonial experience, including the European background;
Winter: nineteenth century revolutions, dictators, and the growth of nationalism;
Spring: the contemporary period; Latin America on the world scene.

80A-80B-80C East Asian Civilizations (1-1-1)
Not offered 1969-70. ("Introduction to Chinese Civilization," to be offered in the program of Comparative Cultures, will be accepted as a civilization survey under the History major requirements for 1969-70.)

90A-90B History of Scientific Thought (1-1) fall, winter
Fall: from Linnean natural history to Darwinian biology (1700-1900)
Winter: from the birth of nuclear physics to the nuclear age (since 1900)

Historiography

100 History and Historians: The Western Tradition (1) fall
101 History as Art & Science (1) winter
Prerequisite: History 100 or permission.
Sect. 1: Man and Society in the First World War
Sect. 2: The Age of the Great Depression in America

Periods, Themes, and Topics

110B Hellenic and Hellenistic Greece (1) winter
112 The Roman Empire (1)
Not offered 1969-70.

115 Early Medieval Europe 300-1000 (1) winter
116 The High Middle Ages 1000-1300 (1) spring
126 Renaissance and Reformation (1)
Not offered 1969-70.

130A Europe in the Nineteenth Century (1)
Not offered 1969-70.

130B Europe in the Twentieth Century (1)
Not offered 1969-70.

130C Europe Since 1939: World War, Cold War, and After (1) spring
131A-131B European Intellectual History: Enlightenment to Twentieth Century(1-1) fall, winter
153A-153B The British Commonwealth and Empire (1-1)
Not offered 1969-70.

166A Colonial America (1)
Not offered 1969-70.

166B National America (1) winter
169 The United States in Transition, 1860-1901 (1) winter

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135A-135B European International Relations, 1848-present (1-1) fall, winter
146A-146B Constitutional and Legal History of English (1-1) fall, winter
173 European Ideas in American Intellectual History (1) fall
174 Intellectual Currents in Twentieth-Century America (1)
Not offered 1969-70.

176B American Foreign Relations Since 1900 (1) spring
Educ 170 History and Philosophy of Education (1) fall

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109 Scientists and Social Forces: the Darwinian Revolution, 1820-1880 (1)
Not offered 1969-70.

114 The Julio-Claudians (1)
Not offered 1969-70.

118 Aspects of Medieval Britain (1)
Not offered 1969-70.

167 Myth vs. Reality in American History (1) spring
170 The Reform Impulse in Modern America (1) spring
175 California in Modern America (1)
Not offered 1969-70.

177 Impact of the Cold War on American Society (1)
Not offered 1969-70.

Comparative History

161 Nineteenth-Century Latin America: Comparative Dictators and Dictatorships (1)
Not offered 1969-70.

162 The Revolution in Latin America (1) spring
179 Comparative Approaches to American History
Sect. 1: Comparative Anglo-American Institutions (1) fall
Sect. 2: America in World Perspectives (1) spring

Special Studies

190 Independent Reading (1) fall, winter, spring
May be repeated. By consent.

191 Special Topics (1) fall, winter, spring
May be repeated. By consent.

192 Experimental Group Study (1) fall, winter, spring
Open to three or more students who agree as a group on a particular topic or theme of study and arrange with a professor of their choice for academic consultation (1-2 hours weekly) and evaluation. By prior arrangement at time of enrollment. May be repeated.

199A-199B Senior Project (1-1)
One quarter of individual background study followed by a senior seminar; during 1969-70 projects will be offered in these areas:

Late Medieval Europe, winter-spring
Tudor-Stuart Britain, winter-spring
European Intellectual History, winter-spring
The Impact of Nuclear Technology on Society, fall-winter
Radical Alternatives to American Reform Before 1860, fall-winter
Radical Alternatives to American Reform After 1860, fall-winter
Twentieth-Century American Intellectual History, winter-spring
Twentieth-Century Latin America, Fall-winter

Graduate Courses in History

Historiography

200A-200B History and Its Related Disciplines (1-1) fall, winter

Colloquia

207 Science and Western Society, 1789-1918 (1)
Not offered 1969-70.

229 Nineteenth-Century Europe, 1789-1920 (1)
Not offered 1969-70.

230 European Intellectual History, 1789-present (1) fall
246 Tudor-Stuart Britain (1) fall
249 British Imperial History (1)
Not offered 1969-70.

254 Great Britain in the 19th and 20th Centuries (1)
Not offered 1969-70.

266 Colonial and National America (1)
Not offered 1969-70.

269 Interpretation and Reinterpretation: America from 1860 to 1900 (1) spring
270 Literature of Modern American Reform, 1890-1920 (1) fall
279 America in World Perspectives (1) spring
280 Europe and the Far East in the Modern Era (1)
Not offered 1969-70.

Seminars

240A-240B Twentieth-Century European Diplomacy (1-1) winter, spring
250A-250B Britain in the Tudor-Stuart Era (1-1) winter, spring
255A-255B Twentieth-Century Britain (1-1)
Not offered 1969-70.

274A-274B American Intellectual History (1-1)
Not offered 1969-70.

277A-277B American Economic and Social History: The Truman Era (1-1) fall, winter

Special Studies

290 Directed Reading (1-3) fall, winter, spring
May be repeated. By consent.

291 Directed Research (1-3) fall, winter, spring
May be repeated. By consent.

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.

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.

Graduate Program

Students entering graduate work for the first time are required to take a written comprehensive examination in order to determine their philosophical aptitude and the extent to which course work is necessary to remove deficiencies in their preparation for graduate study. The work of all graduate students will be supervised closely by their advisors. Further, there will be a close intellectual relation between graduate student and professor in order to provide the student with optimum conditions for philosophical development and to expedite his progress towards advanced degrees.

The Master of Arts in Philosophy

There is no list of course requirements 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:

a) pass a proficiency reading examination in a designated foreign language.[1]
b) write a thesis on a subject to be chosen in consultation with his advisor.
c) defend his thesis in an oral examination

or:

a) pass a proficiency reading examination in a designed foreign language.
b) pass the written Ph.D. qualifying examinations.

Application for admission to candidacy for the M.A. degree is not automatic, but requires formal application to the Dean of the Graduate School via the Philosophy Department office. Application must be made with the recommendation of the Philosophy Department, and should take place at the beginning of the quarter in which the student is expected to complete the requirements listed above.

The 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 and will enroll in three sections of Philosophy 399 (University Teacher Training) as the means of satisfying this requirement.

The Ph.D. degree is designed as a four-year program for the normally qualified student. In exceptional cases it may be possible to obtain the degree within three years. The requirements for the Ph.D. degree are as follows:

a) *Language examinations* to be passed in two appropriate foreign languages. If the student has passed the language requirement for the M.A. degree, it will be counted as one of the two languages required.

1. The foreign language examinations are administered by the Department of Philosophy. They are two hours in length and consist in translating, with the aid of a dictionary, passages from two books. 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, Room 200F of the Humanities and Social Science Building (833-6526).

b) *Written qualifying examinations*[2] to be passed in three of the following fields:
   i) History of Philosophy
   ii) Epistemology and Metaphysics
   iii) Value Theory
   iv) Logic

   and in one of the following:
   i) One individual philosopher (e.g., Plato, Aristotle, etc.)
   ii) A specific problem (e.g., other minds, freedom of the will, identity and change, etc.)
c) *Admission to candidacy and the writing of a thesis.* Upon successful completion of the language and qualifying examinations, the student will apply for admission 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, and will be assigned to the Doctoral Committee by the Graduate Council. The Doctoral Committee then supervises the student's further course work and research, as well as the actual writing of the doctoral thesis.
d) *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

A. I. MELDEN, *Professor of Philosophy and Chairman of the Department*
GORDON G. BRITTAN *Assistant Professor of Philosophy*
DANIEL C. DENNETT, *Assistant Professor of Philosophy*
EIKE-HENNER KLUGE, *Assistant Professor of Philosophy*
JOSEPH F. LAMBERT, *Professor of Philosophy*
STANLEY M. MUNSAT, *Associate Professor of Philosophy*
NELSON C. PIKE, *Professor of Philosophy*
GERASIMOS SANTAS, *Professor of Philosophy*
GUY J. SIRCELLO, *Assistant Professor of Philosophy*
PETER WOODRUFF, *Assistant Professor of Philosophy*

Undergraduate Courses in Philosophy

5 Problems of Philosophy (1) fall, winter, spring

15 Introduction to Ethics (1) fall

20A History of Ancient Philosophy (1) fall
Prerequisite: Philosophy 5 or permission of instructor.

20B History of Medieval Philosophy (1) winter
Prerequisite: Philosophy 20A.

2. These examinations will each take three hours. They will be offered in the spring quarter and taken during the second year of graduate work. A student failing the qualifying examinations *may* be allowed by the department to repeat them.

20C History of Modern Philosophy (1) spring
Prerequisite: Philosophy 20B.

50 Elements of Logic (1) fall, winter, spring
65A Philosophy of Religion (1) winter
65B Philosophy of Religion (1) spring
Prerequisite: Philosophy 65A or the permission of instructor.

66 Mysticism (1) spring, not offered in 1969-70.

Unless otherwise specified, one course in philosophy is required for each of the following courses. In special cases the requirement may be waived. Inquiries should be directed to the staff.

100 Metaphysics (1) fall
Prerequisite: Philosophy 20A-B-C or permission of instructor.

105 Philosophical Classics (1) spring
Not offered in 1969-70.

110 Theory of Knowledge (1) spring
Prerequisite: Philosophy 20A-B-C, or permission of instructor.

115 Ethical Theory (1) winter
Prerequisite: Philosophy 15.

121 Plato (1) fall
Prerequisite: Philosophy 20A or permission of the instructor. Not offered in 1969-70.

125 Medieval Philosophy (1) spring
Prerequisite: Philosophy 20B or permission of the instructor.

126 Continental Rationalism (1) spring
Prerequisite: Philosophy 20C or permission of the instructor.

127 British Empiricism (1) fall
Prerequisite: Philosophy 20C or permission of the instructor.

128 Kant (1) winter
Prerequisite: Philosophy 20C or permission of the instructor. Not offered in 1969-70.

130 Philosophy of Mind (1) fall
Prerequisite: Philosophy 20A, B, and C, or permission of instructor.

135 Philosophy of Language (1) winter
140 Philosophy of History (1) spring
145 Social and Political Philosophy (1) winter
146 American Philosophy (1) winter
150 Introduction to Mathematical Logic (1) winter
151 Intermediate Mathematical Logic (1) spring
Prerequisite: Philosophy 150 or its equivalent.

152 Advanced Mathematical Logic (1) fall
Prerequisite: Philosophy 151 or its equivalent. Not offered in 1969-70.

155 Philosophy of Logic (1) spring
Prerequisite: Philosophy 150 or its equivalent.

160 Introduction to Philosophy of Science (1) fall
170 Introduction to Aesthetics (1) fall
171 Theory of Art and Criticism (1) winter
Prerequisite: Philosophy 170 or permission of the instructor.

180 Contemporary Analytic Philosophy (1) fall
Prerequisite: Philosophy 20A-B-C or permission of instructor. May be repeated for credit.

189 Philosophy of Sartre (1) spring
Not offered in 1969-70.

190 Directed Special Studies (1) fall, winter, spring
May be repeated for credit.

199 Honors Thesis (1) fall, winter, spring
May be repeated for credit.

Graduate Courses in Philosophy

Since seminar and graduate course topics vary with the occasions on which they are offered, they may be repeated for credit.

200 Seminar in Metaphysics (1) fall
Prerequisite: Approval of the chairman.

210 Seminar in Theory of Knowledge (1) winter
Prerequisite: Approval of the chairman.

215 Seminar in Ethics (1) spring
Prerequisite: Approval of the chairman.

220 Seminar in History of Philosophy (1) fall
Prerequisite: Approval of the chairman.

221 Seminar in Philosophy of Plato (1) spring
Not offered in 1969-70.

222 Seminar in Philosophy of Aristotle (1) winter
Prerequisite: Approval of the chairman.

228 Seminar in Philosophy of Kant (1) fall
Prerequisite: Approval of the chairman.

230 Seminar in Philosophy of Mind (1) spring
Prerequisite: Approval of the chairman.

250 Seminar in Logic (1) fall
Prerequisite: Approval of the chairman.

252 Seminar in Set Theory (1) spring
Not offered in 1969-70. Prerequisite: Approval of the chairman.

255 Seminar in Philosophy of Logic (1) winter
Prerequisite: Approval of the chairman.

260 Seminar in Philosophy of Science (1) winter
Not offered in 1969-70.

265 Seminar in Philosophy of Religion (1) fall
Not offered in 1969-70.

270 Seminar Topics in Aesthetics (1) spring
Prerequisite: Approval of the chairman.

280 Seminar in Contemporary Philosophy (1) winter
Prerequisite: Approval of the chairman.

299 Directed Research (1) fall, winter, spring
Prerequisite: Approval of the chairman.

399 University Teacher Training (1) fall, winter, spring
Prerequisite: Approval of the chairman.

DEPARTMENT OF SPANISH AND PORTUGUESE

Undergraduate Program

The main objectives of the program in Spanish and Portuguese are:

1. To develop competence in the ability to understand, speak, read, and write Spanish and Portuguese.
2. To provide through the knowledge of these two languages an understanding and appreciation of their literature and culture.

All courses in Spanish and Portuguese, unless specifically stated, are taught in the foreign language. First-year courses meet in the classroom five 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.

Students will be placed in foreign language 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. Students who present two years of high school foreign language may not enroll for credit in Foreign Language 1A; students who present three years of high school foreign language may not enroll for credit in Foreign Language 1A or 1B. Students who present four years of high school foreign language may not enroll for credit in Foreign Language 1A, 1B, or 1C.

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 dialectal variants. 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 course in Hispanic civilization combines a panoramic over-view with a close look at a specific country or topic.

The requirements for the major in Spanish are courses 10A-B, 11, 12A-B-C, 110, six upper-division courses in literature, and Linguistics 100.

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.

Graduate Programs

The Master of Arts in Spanish

The candidate is expected to have the equivalent of our undergraduate major. He takes a minimum of eleven courses, eight of which must be exclusively graduate (200 level). Six of the eleven courses must be in literature and two in linguistics. 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 student and will also test the student's ability to express himself correctly in the major foreign language. No thesis is required. Spanish students should have a knowledge of the fundamentals of Latin (equivalent to the level attained at the end of course 1B) as a prerequisite for the courses in the history of the Spanish language.

The Doctor of Philosophy in Spanish

A. *Language Requirements*

1. A reading knowledge of Portuguese and two other foreign languages relevant to the student's area of specialization and subject to the approval of the department.
2. The fundamentals of Latin (the equivalent of UCI courses 1A and 1B) is a prerequisite for the courses in Romance Linguistics and the course in the History of the Spanish Language.

B. *Course Requirements*

1. Two graduate courses in Spanish Linguistics, one of which should be diachronic and the other synchronic.
2. A minimum of 18 graduate courses or seminars in Spanish, Spanish-American literature, and Luso-Brazilian literature beyond the B.A.
3. A minimum of 3 courses outside the Department of Spanish and Portuguese in areas related to the field of specialization.
4. One of the above courses in (b.) or (c.) should be a course in literary criticism.

C. *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 under supervision at UCI one course in each of three quarters.

D. *Comprehensive Examination*

The student is admitted to candidacy if he passes by a majority vote 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:

1. The student will choose one of the following four fields which will constitute one-half of the examination. He will also be held responsible for a knowledge of the major Luso-Brazilian works in his field of specialization:
   a. Philology and medieval literature
   b. Renaissance and Golden Age
   c. 18th, 19th, and 20th-century Spanish literature
   d Spanish-American literature
2. The other half of the examination will be based on the following complementary fields:
   a. one of the above fields closely related to the field of specialization
   b. the literary period of specialization in two non-Iberic countries
   c. the theory and development of a given literary genre, i.e.: the novel, the short story, epic poetry, etc.

E. *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 Doc-

toral 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 examinations 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

SEYMOUR MENTON, *Professor of Spanish and Portuguese and Chairman of the Department*
HOWARD A. APPEL, *Supervisor of Teacher Education*
RICHARD BARRUTIA, *Associate Professor of Spanish and Director of the Language Laboratory and the Program in ESL and non-Indo-European Languages*
ANDRES DIEZ-ALONSO, *Acting Assistant Professor of Spanish*
ANTONIO PAGES-LARRAYA, *Professor of Spanish*
JULIAN PALLEY, *Associate Professor of Spanish*
DARNELL ROATEN, *Lecturer in Spanish*
ZIDIA STEWART, *Associate in Spanish and Portuguese*
WILLIAM D. TRUESDELL, *Assistant Professor of Spanish*
JUAN VILLEGAS, *Associate Professor of Spanish*

Courses in Education

102A Methods of Teaching Foreign Languages
Prerequisite: Linguistics 100 and senior standing as a foreign language major.

Courses in Linguistics

100 Introduction to Linguistics (1)
101 Comparative and Historical Linguisitics (1)
Prerequisite: Linguistics 100

102 Morphology and Phonology (1)
Prerequisite: Linguistics 100

199 Special Studies in Linguistics (1)
May be repeated.

Courses in Portuguese

K1A-K1B-K1C Fundamentals of Portuguese (1-1-1)
A self-instructional course in the fundamentals of Portuguese for highly motivated students who have already studied two years of another foreign language at the college level. Students will work at their own speed in the language laboratory and will be tested in the middle and at the end of each quarter.

140A-140B-140C Brazilian Prose Fiction (1-1-1)
Prerequisite: Portuguese K1C or the equivalent.

190 Reading and Conference

Lower Division Courses in Spanish

1A-1B-1C Fundamentals of Spanish (1-1-1)
K1A-K1B-K1C Fundamentals of Spanish (1-1-1)
A self-instructional course in the fundamentals of Spanish for highly motivated students who have already studied two years of another foreign language at the college level. Students will work at their own speed in the language laboratory and will be tested in the middle and at the end of each quarter.

2A-2B-2C Spanish Reading and Composition (1-1-1)
Prerequisite: Normally three years of high school Spanish or one year college Spanish.

10A-10B Advanced Composition (1-1)
Prerequisite: Completion of Spanish 2C or the equivalent. Writing compositions on a variety of themes, motivated and prepared in the classroom, and arranged in order of difficulty. Review of selected grammatical topics. Four classroom meetings per week.

11 Spanish Phonetics (1)
Prerequisite: Spanish 2C or the equivalent.

12A-12B-12C Introduction to Spanish Theater, Prose Fiction, and Poetry (1-1-1)
Prerequisite: Completion of Spanish 2C or the equivalent.

Upper Division Courses in Spanish

The prerequisite for all upper division literature courses is Spanish 12A, 12B, 12C or the equivalent.

105 Advanced Composition and Stylistics (1)
Prerequisite: Spanish 10B or the equivalent.

110 Hispanic Civilization (1)
Prerequisite: Spanish 10B or the equivalent.

115 Masterpieces of Spanish Medieval Literature (1)
117A-117B-117C Golden Age Literature (1-1-1)
119A-119B-119C Nineteenth Century Spanish Literature (1-1-1)
120A-120B-120C Twentieth Century Spanish Literature (1-1-1)
130A-130B-130C Spanish-American Prose Fiction (1-1-1)
131A-131B-131C Spanish-American Poetry, Theater, Essay (1-1-1)
133 Argentine Literature (1)
190 Reading and Conference
May be repeated.

Graduate Courses in Spanish

200A-200B Romance Linguistics (1-1)
Prerequisites: Fundamentals of Latin. Knowledge of French or Spanish or Italian.

201 History of the Spanish Language (1)
Prerequisite: Fundamentals of Latin.

202 Contrastive Spanish Phonology (1)
203 Contrastive Spanish Morphology and Syntax (1)
210A-210B-210C Medieval Literature (1-1-1)
215A-215B-215C Golden Age Prose Fiction (1-1-1)

216A-216B Golden Age Lyric Poetry (1-1)
217A-217B Golden Age Theater (1-1)
219A-219B-219C Nineteenth Century Spanish Literature (1-1-1)
220A-220B Modern Spanish Novel (1-1)
221A-221B Modern Spanish Poetry (1-1)
222A-222B Modern Spanish Theater (1-1)
233A-233B-233C Twentieth Century Spanish-American Prose Fiction (1-1-1)
234A-234B-234C Spanish-American Poetry (1-1-1)
250 Studies in Spanish Language and Literature (1)
May be repeated.

290 Reading and Conference
May be repeated.

299 Dissertation Research

SCHOOL OF PHYSICAL SCIENCES

FREDERICK REINES
Dean

The School of Physical Sciences offers both preprofessional training and general education in the Departments of Chemistry, Mathematics, and Physics. The faculty, active in research and graduate education, is 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 sciences 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 well-defined departmental structure of the School of Physical Sciences. In the same period, these fundamental disciplines have moved into domains of abstraction unimagined by early scientists, whose view of nature and of number was tied to direct sense perception. This trend to abstraction provides the major challenge to the student of the physical sciences and is the key to the unparalleled modern power of these disciplines. 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.

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 both of students planning careers in other fields 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.

The undergraduate student, in consultation with his advisor, will choose courses of study leading to a major in one department. In carrying out this major, the student will often concentrate very heavily in a second department within the School, and, less frequently, will complete a double major.

All initial courses of study for majors include mathematics through calculus, and calculus is a prerequisite to much of the junior-senior work in each major. A student interested in any of the physical sciences should continue his mathematical training beyond these prerequisite courses. Furthermore, the student interested in either physics or chemistry will usually include work in both of these subjects in his undergraduate career.

Although English is becoming increasingly the international language of science, much important scientific literature is still printed in foreign languages, and scientists need to communicate in person with foreign colleagues. Comprehension of at least one of the languages, French, German, or Russian, is an integral requirement of the preparation for majors in chemistry and mathematics. Chemistry majors may have the added option of acquiring competence in Japanese. Details are given in the Academic Plan for the School of Physical Sciences.

Precise and clear expression in written English will be expected in course work in the School. Students found wanting by the School may be required to enroll in English 5-10-15.

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.

Transfer students should read the section on Transfer Credit under Admissions.

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 chemistry curriculum is designed to satisfy the needs of nonscience students and of students concentrating in disciplines related to chemistry as well as those of students majoring in chemistry. The year course in general chemistry (Chemistry 1) serves equally as a prerequisite to the study of chemistry at more advanced levels and as a terminal course that provides an introduction to the varied aspects of modern chemistry for those not wishing to pursue further studies in this area. It is followed by a comprehensive one-year course in organic chemistry (Chemistry 51), which is required for chemistry majors and which will also be of particular interest and importance for students preparing for careers in biology and medicine. In the third year the chemistry major will normally enroll in the lecture course in physical chemistry (Chemistry 131) and in the three-quarter quantitative laboratory sequence (Chemistry 71, Chemistry 151, Chemistry 152). These courses, emphasizing the quantitative aspects of modern chemistry, will likewise be valuable for graduate and undergraduate students in biology. Junior transfer chemistry majors who, after consultation with their advisor, find they are deficient in organic chemistry may postpone all or part of the quantitative laboratory sequence until the senior year. For such persons the junior year enrollment should include organic chemistry and physical chemistry. For completion of the chemistry major three additional chemistry courses are required, and these are normally taken in the senior year. One of these required courses is Chemistry 215, an advanced course in inorganic chemistry, and the remaining two may be elected from the senior-graduate courses numbered 160-253. No more than one quarter of undergraduate research (Chemistry 180) can be counted toward the total of three. Since the field of chemistry ranges from close contact with biological sciences (biochemistry) on the one hand to physics (chemical physics) on the other, the remainder of the student's program may be selected to suit individual interests. These choices include not only the options in the senior year described above but also the choice of courses in mathematics and other sciences to meet the requirements of the major. See requirements for the chemistry major summarized below.

Because much of the important chemical literature has been and continues to be published in languages other than English, comprehension of at least one of the languages, German, Russian, French, or Japanese, is an integral part of adequate preparation for a career in chemistry. The departmental foreign language requirement may be met by four years of work in one of these languages in high school or by two years study of one of these languages in a college or university with a grade of C or better in the final quarter or semester of work. Enrollment in UCI language courses on a Passed-Not Passed basis is permissible; a Passed is required in the final quarter of work in a course numbered 2C. The credit by examination option for UCI language courses may also be exercised to satisfy the requirement, subject to the above restrictions concerning grades in the final quarter. As an alternative to proficiency demonstrated through satisfactory course work, chemistry majors may satisfy the foreign language requirement by passing a technical reading examination administered by the University. Details of this alternative may be obtained in the Chemistry Department Office.

The undergraduate program in chemistry emphasizes close contact with research. Students of superior ability and preparation are urged to engage in research under the direction of a staff member and should, if possible, enroll in the Honors section of the undergraduate courses.

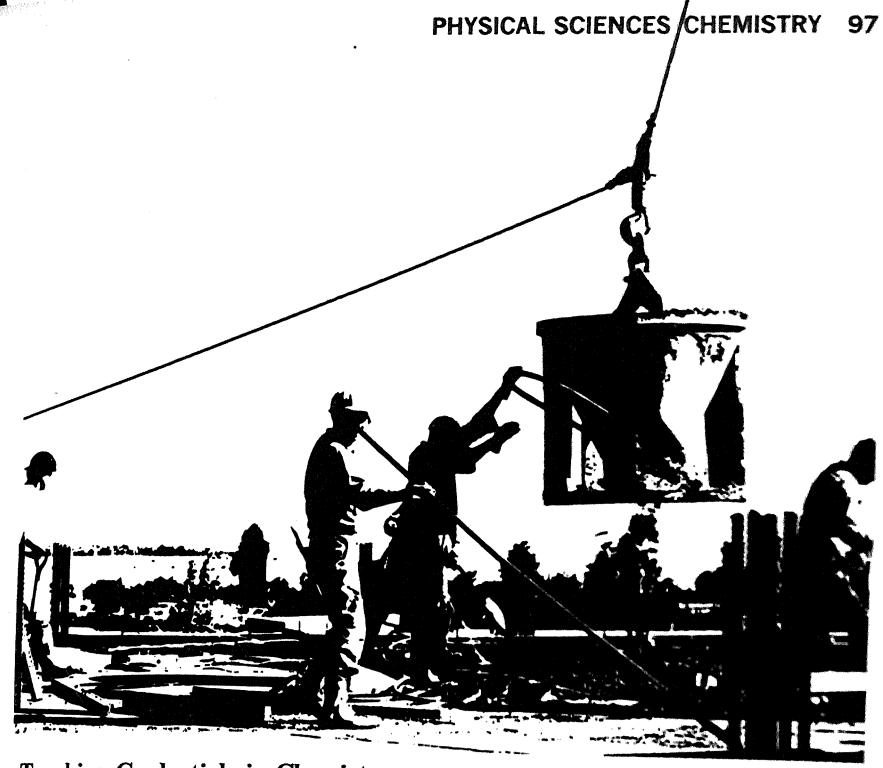
Typical Programs for Undergraduate Chemistry Majors

There follow below three sample programs which illustrate some of the many possible ways in which a chemistry major might arrange his schedule of courses. Only courses required or recommended by the School or Department are listed explicitly. Six quarters of foreign language are included in all three programs on the assumption that the majority of students will choose to satisfy the foreign language requirement through course work. Courses listed as electives may be used as needed to satisfy University and School requirements listed below. It should be recognized that courses such as foreign language or biological science which count toward School or Departmental requirements may be used simultaneously to satisfy University requirements if a student so desires. Program A below is not biased toward any particular area of chemistry; programs B and C contain, respectively, possible course selections for those wishing to pursue graduate studies in biochemistry and chemical physics.

A.	Fall	Winter	Spring
First Year	*ICS* 1 *Math* 2A Elective *Chem* 1A	*Physics* 5A *Math* 2B Elective *Chem* 1B	*Physics* 5B *Math* 2C Elective *Chem* 1C
Second Year	*Physics* 5C *Math* 3A Elective *Chem* 51A	*Physics* 5D *Math* 3B Elective *Chem* 51B	*Physics* 5E *Math* 3C Elective *Chem* 51C
Third Year	For. Lang. Elective *Chem* 131A *Chem* 71	For. Lang. Elective *Chem* 131B *Chem* 151	For. Lang. Elective *Chem* 131C *Chem* 152
Fourth Year	For. Lang. Elective *Math* 100A *Chem* 213	For. Lang. Elective *Chem* 180 *Chem* 202	For. Lang. Elective *Chem* 180 *Chem* 215

B.	FALL	WINTER	SPRING
FIRST YEAR	Elective *Math* 2A For. Lang. *Chem* 1A	Elective *Math* 2B For. Lang. *Chem* 1B	Elective *Math* 2C For. Lang. *Chem* 1C
SECOND YEAR	Elective *Math* 3A *Chem* 71 *Chem* 51A	Elective *Math* 3B *Physics* 5A *Chem* 51B	Elective *Math* 3C *Physics* 5B *Chem* 51C
THIRD YEAR	For. Lang. *Biol. Sci.* 100A *Chem* 131A *Physics* 5C	For. Lang. *Biol. Sci.* 100B *Chem* 131B *Chem* 151	For. Lang. *Biol. Sci.* 100C *Chem* 131C *Chem* 152
FOURTH YEAR	*Biol. Sci.* 100D Elective Elective *Chem* 201	*Biol. Sci.* 100E Elective Elective *Chem* 233	*Biol. Sci.* 100F Elective *Bio. Sci.* 208 *Chem* 215

C.	FALL	WINTER	SPRING
FIRST YEAR	*ICS* 1 *Math* 2A Elective *Chem* 1A	*Physics* 5A *Math* 2B Elective *Chem* 1B	*Physics* 5B *Math* 2C Elective *Chem* 1C
SECOND YEAR	*Physics* 5C *Math* 3A For. Lang. *Chem* 51A	*Physics* 5D *Math* 3B For. Lang. *Chem* 51B	*Physics* 5E *Math* 3C For. Lang. *Chem* 51C
THIRD YEAR	For. Lang. *Physics* 111 *Chem* 131A *Chem* 71	For. Lang. Elective *Chem* 131B *Chem* 151	For. Lang. Elective *Chem* 131C *Chem* 152
FOURTH YEAR	*Math* 100A Elective *Chem* 231 Elective	*Math* 100B Elective *Physics* 112 Elective	*Math* 100C Elective *Chem* 232 *Chem* 215



Teaching Credentials in Chemistry

Students seeking a secondary teaching credential in Chemistry should include Education 170 or 172, 171, and 101 in their undergraduate program. These and other undergraduate requirements for the teaching credential are described in Education of Teachers in this publication. The mandatory fifth year of study can be most profitably spent in full-time pursuit of the M.A. in Chemistry following Plan II described below. After receipt of the M.A. at the end of the fifth year, Education 102A and 320A may be completed in the following summer prior to award of an Intern Credential in time for the fall school term. Alternatively, the fifth year may be devoted to taking Education 102A and 320A-B-C plus enrollment in a sufficient number of graduate chemistry courses to satisfy the requirements for the Standard Credential. Similar procedures are available to those seeking a junior college teaching credential, and in all cases students who wish a teaching credential should discuss the details of their program with their advisor and with the Office of Teacher Training.

Requirements for the Degree of Bachelor of Arts in Chemistry

A. *University Requirements*

These requirements are discussed more fully in earlier portions of the Catalogue, and include the following:

1. Subject A requirement.
2. American History and Institutions requirement.
3. University breadth requirement.
4. Credit for at least 45 courses, with a minimum average grade of C.
5. Three-quarter residence requirement.

B. *School of Physical Sciences Requirements*

Ability to express ideas in written English with clarity and precision.

C. *Department of Chemistry Requirements*

Chemistry: One year of general chemistry, Chemistry 1 or 11 or equivalent; one year of organic chemistry, Chemistry 51 or equivalent; three one-quarter courses in quantitative chemistry, Chemistry 71, Chemistry 151, and Chemistry 152, or equivalent; one year of physical chemistry, Chemistry 131; one quarter of inorganic chemistry, Chemistry 215; two courses in chemistry elected from those numbered 160-253 of which Chemistry 180 may not be counted more than once; in addition, twelve courses to be chosen from the offerings in mathematics, physics, and biological sciences including: (a) at least one year of calculus, and (b) at least one year of college-level physics for which calculus is either a prerequisite or corequisite (neither Physics 3 nor Information and Computer Science 1 meets the above requirements; the six courses not specified under (a) and (b) may be taken on a Pass/Not Pass basis subject to the usual restrictions on Pass/Not Pass enrollment); reading competence in one of the foreign languages French, German, Japanese, or Russian to be demonstrated by: (a) completion of four years of high school work in the language, (b) satisfactory completion of two years of college work in the language, or (c) passing technical reading examination administered by the University. (Satisfactory completion of college work is established by a grade of C or better in the final quarter or semester, or by a grade of Passed if work is taken on a Passed/Not Passed basis, or by corresponding credit earned via the Credit by Examination option.)

Graduate Programs

The Department offers programs leading to both the M.A. and the Ph.D. degrees in chemistry. These programs are identical for the student during his first year of graduate work. The M.A. degree is granted in recognition of a broad knowledge of the facts and theories of modern chemistry, together with skill and competence in laboratory techniques; the Ph.D. degree is granted in recognition of the demonstrated ability to carry out independent research in chemistry.

Both programs rely on specific examinations of various kinds: area examinations over the general content of chemical knowledge, cumulative examinations over more recent specific developments in chemistry, and an oral candidacy examination in defense of original research propositions. Only the area examinations are required for candidates for the M.A. degree, but all three are required for the Ph.D. degree.

A comprehensive program of graduate courses is also available, and is an integral part of the graduate program. The specific program most suitable for a particular graduate student will be recommended to him by the Department, taking cognizance of his performance on the initial area examinations.

The Master of Arts in Chemistry

The requirements for the M.A. degree can be met through either one of two plans, as described below. For either plan, a minimum of three quarters in residence is required. The requirements for the two plans are:

Plan I: Thesis Plan

1. A reading knowledge of one foreign language (Russian, German, Japanese, or French).
2. Successful completion of the area examinations.
3. Completion of an original thesis.

Plan II: Course-Examination Plan

1. A reading knowledge of one language (Russian, German, Japanese, or French).
2. Successful completion of the area examinations.
3. Completion of 10 courses in chemistry at the 200 level with an average grade of B or better. Chemistry 290 may not be counted toward the total of 10, and Chemistry 280 may be counted only once.

The procedures for meeting the foreign language requirement and for passing the area examinations are described in more detail in the section on the Ph.D. degree. The thesis required for the M.A. degree summarizes the results of original research performed by the student under the supervision of a faculty member. No oral examination is required in defense of the dissertation submitted for the M.A. degree.

The Doctor of Philosophy in Chemistry

The principal requirements for the Ph.D. degree in chemistry are six quarters in residence, admission to candidacy, and successful completion and defense of a dissertation reporting results of original research. The Ph.D. candidate must also demonstrate competence in one foreign language from among the four: Russian, German, Japanese, and French.

1. *Residence.* As many as three of the six quarters in residence may be waived for students who have had graduate work at another institution.
2. *Admission to candidacy.* Students entering graduate work in the program leading to the Ph.D. degree must pass area examinations in each of these three general fields of chemistry: physical chemistry, organic chemistry, inorganic and nuclear chemistry. These examinations presume thorough preparation in the various areas at the level of undergraduate instruction. Area examinations are given in September, February, and May, and must be successfully completed by the end of the third examination period after initial enrollment.
   A series of cumulative examinations, given each month and more closely oriented toward current chemical research, is also taken. Students shall begin taking the cumulative examinations in the month following successful completion of the area examinations, and all subsequent examinations must be taken until the requirement is satisfied. Successful completion of four examinations within a maximum of twelve attempts satisfies this requirement.
   An oral examination on original research propositions, and on the student's thesis research topic, is given within two quarters following completion of the cumulative examinations. Successful completion of the oral examination leads to recommendation for admission to candidacy. In the event of a failure on the oral examination, one re-examination is permitted within three months of the first.
   Students must achieve admission to candidacy before the beginning of their ninth quarter of residence unless exceptional conditions justify an extension of time.
3. *Course Requirements* The student is required to pass, with an average grade of B or better, the graduate courses specified for him by the Department. These courses will be chosen with his particular interests in mind, and will ordinarily include six to eight one-quarter graduate-level courses. No minimum number is specified, however, and excellent performance in the area examinations will result in a smaller number of specified courses for the student.
4. *Foreign Language Requirements.* These requirements may be met by passing, with a minimum grade of C or Passed, a UCI language course numbered 2C

or by passing a graduate reading examination administered by the University.

5. *Dissertation.* A dissertation summarizing the results of original research performed by the student under the supervision of a faculty member in the department is required for the Ph.D. degree. The criterion for acceptance by the Department of a dissertation is that its contents 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 Chemistry Department at UCI.
6. *Defense of Dissertation.* Upon completion of the dissertation, the student will take an oral examination, open to the public, before a committee consisting of his research supervisor, two additional members of the Chemistry Department, and, when pertinent, a member of another department. The student will be examined on the contents of the dissertation and on topics in branches of chemistry which are related to the subject matter of the dissertation.
7. *Teaching.* The graduate program at Irvine enables all students to participate in some teaching during their graduate studies. A minimum of 3 quarters of teaching is required of Ph.D. candidates.

Chemistry Faculty

F. S. ROWLAND, *Professor of Chemistry and Chairman of the Department*
DAVID A. BRANT, *Assistant Professor of Chemistry*
ROBERT T. C. BROWNLEE, *Instructor in Chemistry*
DON L. BUNKER, *Professor of Chemistry*
MARJORIE C. CASERIO, *Associate Professor of Chemistry*
DONALD ROBERT DAVIS, *Assistant Professor of Chemistry*
ROBERT J. DOEDENS, *Assistant Professor of Chemistry*
MICHAEL H. FISCH, *Assistant Professor of Chemistry*
VICTOR GOLD, *Visiting Professor in Chemistry* (winter quarter)
HAROLD H. HARRIS, *Instructor in Chemistry*
EDWARD K. C. LEE, *Assistant Professor of Chemistry*
PETER LEE, *Instructor in Chemistry*
GEORGE E. MILLER, *Lecturer in Chemistry*
HAROLD W. MOORE, *Assistant Professor of Chemistry*
THOMAS SMAIL, *Instructor in Chemistry*
ROBERT W. TAFT, *Professor of Chemistry*
RONALD D. TOPSOM, *Visiting Professor in Chemistry* (fall and winter quarters)
MAX WOLFSBERG, *Professor of Chemistry*

Undergraduate Courses in Chemistry

1A-1B-1C General Chemistry (1-1-1) fall, winter, spring
Lecture, three hours; discussion one hour; laboratory, four hours. Prerequisites for 1A: high school chemistry, high school physics, three years of high school mathematics. Prerequisites for 1B and 1C: successful completion of previous courses in the sequence. Concurrent enrollment in calculus will be useful but is not required. Students lacking some prerequisites may be admitted by permission of the Department.
The course provides a broad introduction to the theoretical foundations and practice of modern chemistry. Principles are illustrated through the systematic study of the descriptive chemistry of the elements. The laboratory experiments demonstrate general principles and develop laboratory technique. Topics of study: stoichiometry, phenomenological gas laws, kinetic theory of gases, the electronic structure of the atom, the nucleus, the chemical bond, properties of solids, properties of liquids and liquid mixtures, chemical equilibrium, aqueous ionic equilibria, oxidation-reduction equilibria, chemical thermodynamics, chemical kinetics, periodic properties of the elements, systematic descriptive chemistry of the elements.

11A-11B-11C Honors General Chemistry (1-1-1) fall, winter, spring
A course designed for the student with superior ability and preparation. The format and syllabus follow closely those of Chemistry 1, but topics will be developed more extensively and the laboratory will provide greater opportunity for exercise of individual initiative in design and execution of experiments. Admission by permission of the Department.

51A-51B-51C Organic Chemistry (1-1-1) fall, winter, spring
Lecture, three hours; discussion, one hour; laboratory, four hours. Prerequisite for 51A: one year of general chemistry. Prerequisites for 51B and 51C: successful completion of previous courses in the sequence.
Development of fundamental concepts relating to carbon compounds with emphasis on structural theory and the nature of chemical bonding, stereochemistry, reaction mechanisms, spectroscopic, physical and chemical properties of the principal classes of carbon compounds. The accompanying laboratory course provides experience in modern techniques of organic chemistry, using selected experiments to illustrate the topics introduced in the lectures.

71 Quantitative Analysis (1) fall
Lecture, three hours; laboratory, six hours. Prerequisite: one year of general chemistry.
The course emphasizes the development of careful laboratory technique with experiments chosen to illustrate the principles of chemical and ionic equilibrium in solution. Several classical analytical experiments familiarize the student with analytical methods and equipment, with the principles and practice of experimental error analysis, and with the precision obtainable through careful work. Acid-base equilibria are treated thoroughly including the theory of titration curves, buffer solutions, multiple equilibria, and electrometric pH determinations. Finally, chromatographic methods of separation and colorimetric methods of analysis are studied and illustrated by suitably chosen laboratory work.

131A-131B-131C Physical Chemistry (1-1-1) fall, winter, spring
Lecture, three hours; discussion, one hour. Prerequisites for 131A: one year of general chemistry, one year of college physics (concurrent enrollment in Physics 5C is acceptable), one year of calculus. Prerequisites for 131B and 131C: successful completion of previous courses in the sequence.
The sequence of topics covered will be:
131A—Quantum chemistry, atomic and molecular structure, and spectroscopy.
131B—Classical thermodynamics of pure and mixed systems in gaseous and condensed phases.
131C—Kinetic theory of gases, statistical mechanics, chemical kinetics, photochemistry, and structural chemistry.

151 Instrumental Analysis (1) winter
Lecture, three hours; laboratory, four-six hours. Prerequisites: Chemistry 131A or equivalent, Chemistry 71 or equivalent.
Modern instrumental methods of chemical analysis will be discussed and illustrated. These will include a variety of spectrophotometric and spectral methods, gas chromatography, radiochemical assay, and electrochemical analysis.

152 Physical Chemistry Laboratory (1) spring
Laboratory, ten hours. Prerequisites: Chemistry 151 and 131C (may be taken concurrently).
A course for chemistry majors and others interested in the observational basis and techniques of physical chemistry. Experiments deal with gases, solutions, chemical kinetics, spectroscopy, and other topics, some of which may be proposed by the student.

160 Qualitative Organic Analysis (1) spring
Lecture, two hours; laboratory, eight hours. Prerequisite: Chemistry 51 or equivalent.
A course emphasizing modern spectral and chemical methods of identification of organic compounds.

170 Radioisotope Techniques (1) fall
Lecture, three hours; laboratory, four-six hours. Prerequisite: Chemistry 71 or equivalent. Others may be admitted by permission of the Department.
Basic theory and practice of production, separation, and determination of radioactive isotopes with emphasis on particular applications in chemistry and biology.

180 Undergraduate Research (1) fall, winter, spring
Prerequisites: Chemistry 51 or equivalent, Chemistry 131 or equivalent, and permission of the Department.
The student wishing to engage in research for credit should arrange with a member of the staff to sponsor and supervise such work.

Graduate Courses in Chemistry

201 Physical Organic Chemistry I (1)
202 Physical Organic Chemistry II (1)
205 Synthetic Organic Chemistry (1)
211 Chemical Thermodynamics (1)
213 Chemical Kinetics (1)
215 Inorganic Chemistry I (1)
216 Inorganic Chemistry II (1)
230 Molecular Spectroscopy (1)
231 Quantum Chemistry (1)
232 Statistical Mechanics (1)
233 Nuclear and Radiochemistry (1)
234 Advanced Chemical Kinetics (1)
251 Special Topics in Organic Chemistry (1)
252 Special Topics in Physical Chemistry (1)
253 Special Topics in Inorganic Chemistry (1)
280 Research (½ to 3)
Organic Synthesis, Reaction Kinetics, Radiochemistry, Theoretical Chemistry, Physical Organic Chemistry, Inorganic Chemistry, Physical Chemistry of Macromolecules.

290 Seminar

DEPARTMENT OF MATHEMATICS

Undergraduate Program

The curriculum in Mathematics—from lower division to graduate courses—is augmented by opportunities for supervised individual study and research, seminars, colloquia, and the mathematics programs at nearby branches of the University of California. 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 mathematics courses are of several kinds: (a) courses preparatory to advanced work in mathematics, the exact sciences, and engineering; (b) courses for students of the social sciences; (c) courses for liberal arts students and those planning to enter the teaching field.

See requirements for the mathematics major under the Academic Plan.

Graduate Programs

Graduate courses are designed to meet the needs of students doing graduate work in mathematics and in such disciplines as 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, logic and computers, advanced numerical analysis.

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.

The Master of Arts in Mathematics

The Master's degree programs serve a dual purpose: (a) for some they serve as terminal programs of mathematical education; (b) for others they serve as programs leading to study and research aimed at the Doctor of Philosophy degree. However, a candidate having no Master's degree may, upon successful completion of a proper program of study and research, receive 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, analysis, and geometry/topology are required for this degree. Examinations, both written and oral, will be given to determine the relevant preparation of candidates. For Master's candidates, the ability to read the literature of mathematics in one of the foreign languages, 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 and/or oral) designed to test the competence of the candidate in the fields of algebra, analysis, and geometry/topology.

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 and/or oral) designed to test the competence of the candidate in the fields of algebra, analysis, and geometry/topology.

The residence requirement for the Master's degree consists of 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 pairs of these three quarters by making formal arrangements with the Graduate Division.

The 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 research. He is expected to have breadth in that he is required to demonstrate advanced knowledge and competence in algebra, analysis, and geometry/topology. He is expected to have depth in that he is required to be profoundly familiar 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.: (a) the passing of written and/or oral examinations, and (b) 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 mathemat-

ics in two of the languages, French, German, or Russian.

The examination for predoctoral students are divided into two sets: those used in determining preparation of the students for admission to candidacy for the Doctor of Philosophy degree; those used to determine successful completion of all requirements for the same degree.

The first set (administered by the Department of Mathematics) may consist of both oral and written examinations. The second set is prescribed and administered by the Graduate Division operating through a committee. This committee, consisting of scholars in the field of concentration and scholars in other fields, decides on admission of students to candidacy, and then guides and supervises candidates through their research, study, and writing for the Doctor of Philosophy degree.

Doctoral candidates must be enrolled as full-time students for the six quarters preceding the granting of their degrees.

Mathematics Faculty

RAY A. KUNZE, *Professor of Mathematics and Chairman of the Department*
TAKEO AKASAKI, *Assistant Professor of Mathematics and Vice-Chairman of the Department*
FRANK B. CANNONITO, *Assistant Professor of Mathematics*
ROBERT L. CHAZIN, *Assistant Professor of Mathematics*
DONALD A. DARLING, *Professor of Mathematics*
JAMES DELANY, *Assistant Professor of Mathematics*
WILLIAM F. DONOGHUE, JR., *Professor of Mathematics*
WILLIAM H. FELLNER, *Assistant Professor of Mathematics*
MARK FINKELSTEIN, *Assistant Professor of Mathematics*
JANET L. FISHER, *Assistant Professor of Mathematics*
BERNARD R. GELBAUM, *Professor of Mathematics and Associate Dean of School of Physical Sciences*
JOHN M. GROVER, *Assistant Professor of Mathematics*
JOHN C. HOLLADAY, *Professor of Mathematics*
JOHN M. HOSACK, *Assistant Professor of Mathematics*
RICHARD K. JUBERG, *Associate Professor of Mathematics*
STEPHAN KARAMARDIAN, *Associate Professor of Mathematics and Graduate School of Administration*
BALMOHAN V. LIMAYE, *Assistant Professor of Mathematics* (on leave)
MEINHARD E. MAYER, *Professor of Mathematics and Physics*
GEORGE S. MCCARTY, JR., *Associate Professor of Mathematics* (on leave)
CHARLES M. NAYLOR, *Assistant Professor of Mathematics*
DAVID C. NEWELL, *Assistant Professor of Mathematics*
PAUL H. PALMQUIST, *Assistant Professor of Mathematics*
BERNARD RUSSO, *Assistant Professor of Mathematics*
NOBORU SUZUKI, *Associate Professor of Mathematics* (on leave)
WILLIAM H. SMOKE, *Assistant Professor of Mathematics*
ZENAS M. SYKES, JR., *Associate Professor of Mathematics* (on leave)
RICHARD B. TARSY, *Assistant Professor of Mathematics*
MICHAEL E. TARTER, *Associate Professor of Mathematics and California College of Medicine*
EDWARD O. THORP, *Professor of Mathematics*
HOWARD G. TUCKER, *Professor of Mathematics*

ROBERT W. WEST, *Assistant Professor of Mathematics*
JOEL J. WESTMAN, *Assistant Professor of Mathematics*
ROBERT J. WHITLEY, *Associate Professor of Mathematics*
JAMES J. YEH, *Professor of Mathematics*

Lower Division Courses in Mathematics

(Mathematics 1A—Precalculus Mathematics is no longer available for credit and will not be taught in classrooms. The course is available through computer-assisted instruction at terminals stationed throughout the UCI campus.)

2A-2B-2C Calculus (1-1-1) fall, winter, spring
An integrated treatment of calculus and analytic geometry in which the subject of differentation, integration, and power series expansion of function of a single real variable are discussed together with applications of these topics. Prerequisite: two years high school algebra; one year high school geometry; one-half year trigonometry.

3A-3B-3C Calculus and Linear Algebra (1-1-1) fall, winter, spring
A continuation of 2A-2B-2C in which calculus is studied for functions of several variables and in which the topics of linear algebra (vectors, matrices, linear transformations, etc.) are treated in the context of analysis and differential equations. Prerequisite: 2A-2B-2C.

4A-4B-4C Liberal Arts Mathematics (1-1-1) fall, winter, spring
A course designed to reveal mathematics as a science and an art.
4A—Structure, arithmetic and algebra of the real number system; elementary number theory and numeration (1) fall.
4B—Axiomatic method, application to group theory and geometry (1) winter.
4C—Sets, logic, introduction to calculus and applied mathematics (1) spring.
Prerequisite: One year high school algebra, one year high school geometry.

5A-5B-5C Mathematics for the Biological, Management, and Social Sciences I (1-1-1) fall, winter, spring
Each course in the sequence is a prerequisite for those following.
5A—Probability (1) fall
5B—Calculus (1) winter
5C—Statistics (1) spring

6A-6B-6C Mathematics for the Biological, Management, and Social Sciences II (1-1-1) fall, winter, spring
6A—Linear Algebra (1) fall
6B—Difference and differential equations (1) winter
6C—Numerical methods (1) spring
Prerequisite: 5A-5B-5C.

10A-10B-10C Topics in Mathematics (1-1-1) fall, winter, spring
A course designed to acquaint the beginning student with some of the ideas of modern mathematics that are independent of the calculus, e.g., graph theory, finite groups, number theory. Each quarter is normally devoted to a different topic, and it is not required that the student enroll for the entire sequence. Prerequisite: 2A-2B-2C or permission of instructor.

Upper Division Courses in Mathematics

101A-101B Topics in Mathematics (1-1) winter, spring
Prerequisite: 3A-3B-3C and consent of the instructor.

105A-105B-105C Numerical Analysis (1-1-1) fall, winter, spring
Prerequisite: 100A-100B-100C or 143A-143B-143C.

110A-110B-110C Topology (1-1-1) fall, winter, spring
Prerequisite: 3A-3B-3C.

120A-120B-120C Algebra (1-1-1) fall, winter, spring
Prerequisite: 3A-3B-3C.

130A-130B-130C Probability and Stochastic Processes (1-1-1) fall, winter, spring
Prerequisite: 3A-3B-3C.

131A-131B-131C Mathematical Statistics (1-1-1) fall, winter, spring
Prerequisite: 3A-3B-3C.

140A-140B-140C Advanced Calculus and Elementary Analysis (1-1-1) fall, winter, spring
Prerequisite: 3A-3B-3C.

142A-142B-142C Ordinary and Partial Differential Equations (1-1-1) fall, winter, spring
Prerequisite: 140A-140B-140C or the equivalent.

143A-143B-143C Applied Analysis (1-1-1) fall, winter, spring
Prerequisite: 3A-3B-3C.

144A-144B Introduction to Complex Analysis (1-1) winter, spring
Prerequisite: 3A-3B-3C.

150A-150B-150C Set Theory and Mathematical Logic (1-1-1) fall, winter, spring
Prerequisite: 3A-3B-3C.

155A-155B-155C Automata Theory and Recursion Theory (1-1-1) fall, winter, spring
Not to be given 1969-1970. Prerequisite: 3A-3B-3C, or consent of instructor.

170A-170B Statistical Methods (1-1) fall, winter
Prerequisite: 2A-2B-2C or 5A-5B-5C and 6A.

191A-191B-191C Introduction to the Theory of Games with Applications (1-1-1) fall, winter, spring
Prerequisite: 3A-3B-3C and consent of the instructor or three quarters of upper division mathematics.

199A-199B-199C Special Studies in Mathematics (1-1-1) fall, winter, spring
Prerequisite: Departmental approval.

Graduate Courses in Mathematics

210A-210B-210C Real Analysis (1-1-1) fall, winter, spring
Prerequisite: 140A-140B-140C, or the equivalent.

220A-220B-220C Analytic Function Theory (1-1-1) fall, winter, spring
Prerequisite: 140A-140B-140C, or the equivalent.

221A-221B Several Complex Variables (1-1) fall, winter
Not to be given in 1969-1970. Prerequisite: 220A-220B-220C, or the equivalent.

230A-230B-230C Algebra (1-1-1) fall, winter, spring
Prerequisite: 120A-120B-120C, or the equivalent.

234A-234B-234C Topics in Algebra (1-1-1) fall, winter, spring
Prerequisite: 230A-230B-230C, or consent of instructor.

240A-240B-240C Differential Geometry (1-1-1) fall, winter, spring
Not to be given in 1969-1970. Prerequisite: 110A-110B-110C or 140A-140B-140C.

250A-250B-250C Topology (1-1-1) fall, winter, spring
Prerequisite: 110A-110B-110C, or the equivalent.

254A-254B-254C Topics in Topology (1-1-1) fall, winter, spring
Prerequisite: 250A-250B-250C, or consent of instructor.

260A-260B-260C Functional Analysis (1-1-1) fall, winter, spring
Prerequisite: 210A-210B-210C, or consent of instructor.

261A-261B-261C Operator Theory (1-1-1) fall, winter, spring
Not to be given in 1969-1970. Prerequisite: 210A-210B-210C or 221A-221B-221C.

268A-268B-268C Topics in Functional Analysis (1-1-1) fall, winter, spring
Prerequisite: 260A-260B-260C or consent of instructor.

270A-270B-270C Probability (1-1-1) fall, winter, spring
Not to be given in 1969-1970. Prerequisite: 130A-130B-130C or 210A-210B-210C.

271A-271B-271C Stochastic Processes (1-1-1) fall, winter,spring
Prerequisite: 210A-210B-210C, or the equivalent.

272A-272B-272C Integration in Function Spaces (1-1-1) fall, winter, spring
Not to be given in 1969-1970. Prerequisite: 271A-271B-271C or consent of instructor.

274A-274B-274C Topics in Probability (1-1-1) fall, winter, spring
Prerequisite: 270A-270B-270C or consent of instructor.

280A-280B-280C Mathematical Logic (1-1-1) fall, winter, spring
Not to be given in 1969-1970. Prerequisite: 150A-150B-150C or consent of instructor.

295A-295B-295C Topics in Partial Differential Equations (1-1-1) fall, winter, spring
Prerequisite: 210A-210B-210C, or the equivalent.

299A-299B-299C Supervised Reading and Research (1-1-1) fall, winter, spring

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 11, 12, 13
Intended Audience	Premedical students, biological sciences majors	Physics, chemistry, and engineering majors	Nonscience majors
Mathematical Prerequisites	Algebra and trigonometry; calculus helpful but not required	Calculus (Mathematics 2A; knowledge of computer programming is recommended	None
Preparation for Advanced Courses	Physics 101, 102, 103; Physics 5C with permission	All upper division courses in physics	None

Biological Sciences majors with facility in calculus should consider Physics 5 as an alternative to Physics 3. Non-science majors with some mathematical skill may wish to consider Physics 3 as an alternative to Physics 11, 12, 13.

The Physics 11 series is new and experimental. The content and format of these courses will vary from year to year. In general, these courses will not include regular laboratory work.

Junior-senior courses numbered between 100 and 109 are intended for nonphysics majors. They provide a means for students who have completed Physics 3 or Physics 5A-B-C to pursue specific parts of physics in depth without the requirement of advanced mathematics.

The remainder of the junior-senior 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 include most of the Physics 111 series in his program. 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.

A student who decides to major in physics after completing Physics 3 with an A or a B may, with the permission of the department, enroll in Physics 5C. The programs of transfer students will be decided after individual consultation. The premedical physics requirement may be met with Physics 3 or with Physics 5A-B-C.

Requirements for the B.A. Degree

Physics: 5A, 5B, 5C, 5D, 5E, and eight courses numbered between 110 and 190, including two quarters of advanced laboratory (151-153).

Mathematics: 2A-B-C, 3A-B-C, with 143 particularly recommended.

Writing: Precise and clear expression in written English is expected in course work in the School. Students found wanting may be required to enroll in English 5-10-15.

Recommended Options: Information and Computer Science 1, Chemistry 1, Biological Sciences 1, Engineering 101, a fourth year of mathematics, and two years of Russian, German, or French. Not every physics major should exercise all of these options, nor should he limit his choices outside of science to the minimum needed to satisfy the 6-3-3 requirement. Physics majors should take advantage of the unique opportunity provided by the undergraduate years to broaden their humanistic education.

Graduate Programs

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 an entrance examination shortly before the beginning of the fall quarter. This examination is *not* "passed" or "failed." It serves only to help the student and his advisor decide on the best program of study.

In addition to 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 the life of the Department. A seminar directed at the first and second year graduate students meets once a week. The primary purpose of the seminar is to expose graduate students to phenomena of interest in current physics research. Emphasis will be placed on material not extensively treated in a phenomenological manner. The presentation will be by the students themselves, thus providing experience in public speaking. All entering graduate students are required to participate actively in the seminar for six quarters, or until the Ph.D. qualifying examination is successfully completed.

The Master of Arts in Physics

The requirements for the M.A. degree are: (1) 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, nine graduate courses (200 series) 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.

The Doctor of Philosophy in Physics

The principal requirements for the Ph.D. degree are 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.

1. *Residence.* Up to three of the six required quarters of residence may be waived for students who have had graduate work at another institution.
2. *Course Requirements.* The student is required to pass with an average grade of B or better, nine graduate-level quarter courses (e.g., three three-course sequences) other than the basic sequences, *Mathematical Physics, Electromagnetic Theory, and Quantum Mechanics*
3. *Qualifying Examination.* For advancement to Ph.D. candidacy, a student must pass a qualifying examination consisting of a written and an oral part. The written part covers a broad range of the fundamentals of physics at the advanced undergraduate and graduate levels. Normally the M.A. comprehensive examination and the written Ph.D. qualifying examination will be identical, with a higher level of performance required for the Ph.D. qualification. The qualifying examinaton will generally be given once each year, in Septem-

ber, just prior to the start of classes. Under special circumstances a second examination may be scheduled during the winter quarter. The examination may be taken by some students after one year of graduate study; normally a student should plan to take it before entering his third year. A second attempt will be permitted if the first is not successful. A third attempt will be permitted only in extraordinary circumstances. Upon successful completion of the written examination, the student is examined orally by a committee composed of physics faculty members and one or two representatives from other departments. This examination completes the requirements for Ph.D. qualification. Like the written examination, it may be attempted more than twice only under extraordinary circumstances.

4. *Dissertation.* A dissertation summarizing the results of original research performed by the student under the supervision of a faculty member in the Department 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.
5. *Defense of Dissertation.* Upon completion of the dissertation, the student will take an oral examination, open to the public, before his doctoral committee.

A typical program for the first two years designed to prepare the student for Ph.D. qualification and provide him with the foundation necessary for understanding and participating in modern research, might include:

First Year:

212A-B-C (Mathematical Physics),
213A-B-C (Electromagnetic Theory),
215A-B-C (Quantum Mechanics)

Second Year:

214A-B (Statistical Physics),
214C (Many Body Theory),
217A-B-C (Nuclei, Particles, Solids),
232A-B (Applications of Group Theory)
235A (Advanced Quantum Mechanics)

The second year courses are intended to give the student a grasp of the phenomenology and current state of knowledge in a variety of research fields, and to provide him with the necessary advanced mathematical tools beyond those presented in the basic first-year sequences.

Physics Faculty

ALEXEI A. MARADUDIN, *Professor of Physics and Chairman of the Department*
MYRON BANDER, *Associate Professor of Physics*
ALFRED M. BORK, *Professor of Physics and Information and Computer Science*
RONNIE R. BURNS, *Assistant Professor of Physics*
PAUL E. CONDON, *Associate Professor of Physics*
PHILIP W. COULTER, *Assistant Professor of Physics*
KENNETH W. FORD, *Professor of Physics*
SYLVAN KATZ, *Lecturer in Physics*
WILLIAM R. KROPP, *Assistant Professor of Physics*
MARK A. MANDELKERN, *Assistant Professor of Physics*

MEINHARD E. MAYER, *Professor of Physics and Mathematics*
DOUGLAS L. MILLS, *Assistant Professor of Physics*
MICHAEL M. MOE, *Assistant Professor of Physics*
WILLIAM H. PARKER, *Assistant Professor of Physics*
JOHN R. PELLAM, *Professor of Physics*
FREDERICK REINES, *Professor of Physics and Dean of Physical Sciences*
GEORGE F. REITER, *Assistant Professor of Physics*
NATHAN RYNN, *Professor of Physics*
JONAS SCHULTZ, *Associate Professor of Physics*
GORDON L. SHAW, *Professor of Physics*
SUKEKATSU USHIODA, *Assistant Professor of Physics*
GERARD VAN HOVEN, *Assistant Professor of Physics*
RICHARD F. WALLIS, *Professor of Physics*

Lower Division Courses in Physics

Physics 3 is a one-year course suitable for pre-medical students, students majoring in biological sciences, and nonscience majors. It surveys most of the important branches of physics with strong orientation toward modern physics. Laboratory work accompanies the course.

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 Math 3A concurrent with Physics 5C. Other than Math 2A-B-C there is no corequisite for students planning to enroll in only three quarters of Physics 5. 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.

Physics 11, 12, and 13 are one-quarter general education courses intended for nonscience majors. The precise titles and instructors for these courses will be announced in advance of registration for each quarter.

3A Basic Physics I (1) fall

Survey of particles and nature; studies of motion; the solar system. Facility with algebra and elementary trigonometry is assumed. Mathematics 2A is recommended but not required.

3B Basic Physics II (1) winter

Electricity and magnetism; radiation and waves; optics; heat phenomena. Prerequisite: Physics 3A.

3C Basic Physics III (1) spring

Twentieth century physics; relativity; quantum ideas; atomic and nuclear physics. Prerequisite: Physics 3B.

5A Fundamental Physics I (1) winter

Survey of particles and matter; Newtonian mechanics. Facility in calculus is assumed. Corequisite: Mathematics 2B. Knowledge of computer programming is recommended.

5B Fundamental Physics II (1) spring

Relativity; electricity and magnetism. Prerequisite: Physics 5A. Corequisite: Mathematics 2C.

5C Fundamental Physics III (1) fall

Electromagnetism; wave phenomena; optics. Prerequisites: Mathematics 2A-B-C, Physics 5B.

5D Fundamental Physics IV (1) winter
Quantum theory; atoms and nuclei. Prerequisite: Physics 5C. Corequisite: Mathematics 3B.

5E Fundamental Physics V (1) spring
Thermodynamics and statistical physics. Prerequisite: Physics 5C. Corequisite: Mathematics 3C.

11 Topics in Physics I (1) fall
Not offered in 1969-70.*

12 Topics in Physics II (1) winter
Not offered in 1969-70.*

13 Topics in Physics III (1) spring
Not offered in 1969-70.*

Upper Division Courses in Physics

Courses numbered between 100 and 109 are second-level courses primarily for non-physics majors. Each explores a limited area of physics in depth, with emphasis on concepts and methods. No laboratory.

Courses numbered above 110 are for physics majors and other qualified students. Those numbered between 110 and 130 emphasize the mathematical and theoretical structures that have unified our understanding of nature. Those numbered between 131 and 149 emphasize particular domains of the structure of matter. Laboratory work is assigned to separate courses, the 151 series.

101 Atomic Phenomena (1) fall
Development of the quantum theory; atomic structure and atomic reactions; interpretation of spectra. Prerequisite: Physics 3A-B-C.

102 Nuclear Phenomena (1) winter
Structure of nuclei; radioactivity; reactions; fission and fusion; subnuclear particles. Prerequisite: Physics 3A-B-C.

103 Contemporary Physics (1) spring
Not offered in 1969-70.

111A-111B Classical Mechanics (1-1) fall-winter
Prerequisite: Physics 5B. Corequisite: Mathematics 3.

112A-112B Electromagnetic Theory (1-1) winter-spring
Prerequisite: Physics 5C. Corerequisite: Mathematics 3.

115 Statistical Physics (1) spring
Prequisite: Physics 5E.

116 Thermodynamics (1) fall
Prerequisite: Physics 5E.

130 Quantum Mechanics (1) fall
Prerequisite: Physics 5D.

131 Atomic Physics (1) winter
Prerequisite: Physics 130.

*Students wishing to enroll in these courses should consider University Studies section #1 in the fall (K. Ford) and section #1 in the winter (F. Reines).
Contents and instructors for Physics 11, 12, 13 to be announced. No prerequisites.

132 Nuclear Physics (1) spring
Prerequisite: Physics 130.

133. Solid State Physics (1) spring
Prerequisite: Physics 5D-E.

134 Astrophysics (1) winter
Prerequisite: Physics 5D-E.

135 Plasma Physics (1) fall
Prerequisite: Physics 5E.

136 Elementary Particles (1)
Not offered in 1969-70.

141 Modern Optics (1)
Not offered in 1969-70. Prerequisite: Physics 131

150 Electronics (1)
Not offered in 1969-70. Prerequisite: Physics 5E, both lecture and laboratory work.

151 Advanced Laboratory I (1) fall
152 Advanced Laboratory II (1) winter
153 Advanced Laboratory III (1) spring
Prerequisite for Advanced Laboratory courses: Physics 5D-E or permission of instructor. Physics 130-131-132 recommended but not required.

195 Undergraduate Research (1)
Open to seniors and occasionally to juniors with permission of the department.

199 Readings on Special Topics (1)
With permission of the department.

Graduate Courses in Physics

211A-211B Classical Mechanics (1-1) winter, spring
212A-212B-212C Mathematical Physics (1-1-1) fall, winter, spring
213A-213B-213C Electromagnetic Theory (1-1-1) fall, winter, spring
214A-214B Statistical Physics (1-1) fall, winter
214C Many Body Theory (1) spring
215A-215B-215C Quantum Mechanics (1-1-1) fall, winter, spring
216 Special Relativity (1)
Not offered in 1969-70.

217A Nuclei (1) fall
217B Particles (1) winter
217C Solids (1) spring
221A-221B-221C Solid State Theory (1-1-1) fall, winter, spring
222A Nuclear Theory (1) winter
Not offered in 1969-70.

222B Nuclear Theory (1) spring
Not offered in 1969-70.

223A-223B-223C Elementary Particle Theory (1-1-1) fall, winter, spring
224 Atomic and Molecular Physics
Not offered in 1969-70.

225A-225B-225C Plasma Physics (1-1-1) fall, winter, spring
232A-232B Applications of Group Theory (1) winter, spring
235A-235B-235C Advanced Quantum Mechanics (1-1-1) fall, winter, spring
Prerequisite: Physics 215A-B-C

260-279 Special Topics in Physics (1 each)
These courses are designed to acquaint students with the basic concepts and methods underlying current research activity in selected branches of physics.

260 Topics in Group Theory (1)
261 Topics in Plasmas (1)
262A-262B-262C Topics in Modern Astrophysics (1-1-1) fall, winter, spring
263 Topics in Modern Optics (1)
264 Dispersion Relations (1)
265 General Relativity (1)
Other topics will be added later.

295 Experimental Research (1-3)
With the approval of a faculty member who will guide his work, 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 (1-3)
With the approval of a faculty member who will guide his work, a student may pursue a research program in theoretical physics. Typical areas include: solid state physics, low temperature physics, plasma physics, elementary particle physics, and general relativity.

299 Reading of Special Topics (1)
With special permission from a faculty member who will agree to supervise his program, a student may receive course credit for individual study of some area of physics.

SCHOOL OF SOCIAL SCIENCES

A. KIMBALL ROMNEY
Dean

Undergraduate and graduate education in the School of Social Sciences at UCI involve participation in an experiment. The program, faculty, and students differ substantially from conventional counterparts elsewhere. The specific details of the differences are indicated in this section of the catalog. The details are elaborations of a commitment on the part of faculty and students to a modern social science and a modern education.

The educational programs have a triple emphasis: First, they are built upon systematic empirical observation and quantitative analysis of human behavior. The availability of high-speed electronic computers, the development of mathematics oriented toward the problems of the social sciences, and the refinement of techniques for sampling, observing, and modifying human behavior have contributed major new elements to social science.

Second, many of the most interesting questions in the study of human behavior have scant tolerance for the niceties of disciplinary boundaries. The classic division of subject matter into the domains of anthropology, economics, geography, political science, psychology, and sociology is more honored by tradition than reflective of reality. We face the pleasures and despairs of political economy, geo-psychology, ethno-sociology, and other hyphenated challenges to disciplinary orthodoxy.

Third, important new problems confront society; and social scientists have a responsibility to assist in the development of solutions to these problems. A rapidly changing technology, the pathologies of a population explosion and urban concentration, the thrust of once underdeveloped societies, the creeping mastery of disease, the strains of race relations, the tempestuous marriage of men and machines in problem solving, endemic crises in international affairs, lagging or explosive economic growth, political instability, and explorations of space provide social scientists with an extraordinary list of unsolved problems and opportunities.

A modern program in the social sciences develops skills in the use of social science techniques and knowledge in order to confront these and other contemporary problems. In a world in which knowledge of human behavior is increasing rapidly, training in the social sciences must emphasize the basic analytical tools and the processes by which knowledge is gained. In an age in which social problems and our understanding of man violate traditional academic boundaries, training in the social sciences must emphasize the exploration of boundaries among the social sciences and between the social sciences and other disciplines.

At UCI, education in the social sciences is built upon the assumption that students play an active role in the entire educational process. To facilitate education, various resources are provided—students, faculty, courses, programmed instruction, library, community, lectures, seminars, laboratories, research aids, reading lists, discussion groups, and examinations. The administration provides routine housekeeping services. The faculty provides succor, advice, and occasional wisdom. Students, individually and collectively, make major contributions to the learning process—by participating in regular seminars, proposing new educational materials, developing new programs, and by systematic self-directed study. The programs

described here represent a careful effort on the part of the faculty to define a modern approach to social science. They are sanctified neither by tradition, nor by high authority, nor by pride. From time to time the faculty expects to propose modifications in the programs. It welcomes similar proposals from students, both to meet the individual educational needs of individual students and to improve the quality and relevance of the general program.

Social Sciences Faculty

ALBERT J. AHUMADA, JR., *Assistant Professor of Psychology*
DOUGLAS M. AMEDEO, *Assistant Professor of Geography*
JOEL D. BARKAN, *Acting Assistant Professor of Political Science*
DURAN BELL, *Assistant Professor of Economics*
ARNOLD BINDER, *Professor of Psychology*
ISABEL M. BIRNBAUM, *Assistant Professor of Psychology*
JOHN P. BOYD, *Assistant Professor of Mathematical Anthropology*
MYRON L. BRAUNSTEIN, *Associate Professor of Psychology*
JOHN S. BROWN, *Acting Assistant Professor of Social Science and Information and Computer Science*
MICHAEL BURTON, *Assistant Professor of Anthropology*
MICHAEL BUTLER, *Assistant Professor of Social Science*
DOUGLAS K. CHALMERS, *Assistant Professor of Psycholinguistics*
BENJAMIN N. COLBY, *Associate Professor of Anthropology*
MICHAEL COLE, *Associate Professor of Ethnographic Psychology and Experimental Anthropology*
RICHARD L. DEGERMAN, *Assistant Professor of Psychology*
LYMAN DRAKE, *Lecturer in Political Science*
ROBERT DUBIN, *Professor of Sociology and Administration*
JULIAN FELDMAN, *Professor of Psychology and Information and Computer Science*
DENNIS J. FENTON, *Lecturer in Social Science*
RAUL A. FERNANDEZ, *Assistant Professor of American Studies and Economics*
GORDON J. FIELDING, *Assistant Professor of Geography and Administration*
LEWIS A. FROMAN, JR., *Professor of Social Science*
HENRY HAMBURGER, *Acting Assistant Professor of Mathematical and Computer Models*
JOE T. HART, *Assistant Professor of Psychology*
SHEEN T. KASSOUF, *Assistant Professor of Economics*
LEO KELLER, *Assistant Professor of Psychology*
MARY KEY, *Assistant Professor of English and Social Science*
JEROME KIRK, *Assistant Professor of Sociology and Anthropology*
CHARLES LAVE, *Assistant Professor of Economics*
JEAN LAVE, *Assistant Professor of Anthropology* (on leave, 1969-70)
JAMES G. MARCH, *Professor of Psychology and Sociology*
JOHN J. MCCALL, JR., *Professor of Economics* (on leave, 1969-70)
HAROLD M. MCCARTY, *Visiting Professor of Geography*
DUANE METZGER, *Associate Professor of Anthropology*
DAVID A. NAPIOR, *Lecturer in Social Science*
DEANE E. NEUBAUER, *Assistant Professor of Political Science* (on leave, 1969-70)

LYMAN PORTER, *Professor of Administration and Psychology and Associate Dean of the Graduate School of Administration*
RICHARD POWELL, *Lecturer in Social Science*
A. KIMBALL ROMNEY, *Professor of Anthropology*
ROGER W. RUSSELL, *Professor of Psychobiology and Psychology and Vice Chancellor—Academic Affairs*
HARVEY SACKS, *Assistant Professor of Anthropology and Sociology*
MARTIN M. SHAPIRO, *Professor of Political Science* (on leave, 1969-70)
WILLIAM F. SHARPE, *Professor of Economics*
J. SKLANSKY, *Associate Professor of Electrical Engineering and Information and Computer Science*
RICHARD C. SNYDER, *Professor of Political Science and Administration*
VOLNEY STEFFLRE, *Assistant Professor of Psychology and Anthropology*
RICHARD STRYKER, *Acting Assistant Professor of Political Science*
DAVID N. SUDNOW, *Assistant Professor of Sociology*
FRED E. TONGE, *Professor of Administration and Information and Computer Science*
JOHN WALLACE, *Associate Professor of Psychology and Administration*
CHRISTIAN WERNER, *Associate Professor of Geography*
KENNETH WEXLER, *Assistant Professor of Psychology*
ELEANOR WYNNE, *Director of Laboratory Pre-School*

UNDERGRADUATE DEGREES*

Social Science Degree

The basic undergraduate degree program in the School of Social Sciences is a program in social science, and *all students must fulfill the requirements for that degree.* A student qualifies for a degree in social science by exhibiting:

A. *Satisfactory completion of three basic program requirements.* Each student must have (1) credit for at least 45 courses, earned by examination, by other evaluation, or by course work; (2) a grade average of at least C on all work taken in the University of California, including other campuses; and (3) credit, earned in residence on the Irvine campus, for the last three quarters of work immediately preceding graduation.

B. *A basic understanding of important fields outside the social sciences.* Each student must take six courses in one school other than the School of Social Sciences and three courses in each of two other outside schools (the 6-3-3 requirement). The normal program for majors in the School satisfies the requirement of six courses in the School of Physical Sciences through the mathematics requirement. Students must enroll in at least three courses in each of two of the three other schools (i.e., Biological Sciences, Fine Arts, Humanities) either at UCI or elsewhere. These are minimal requirements; students are urged to take additional advanced work outside the social sciences.

C. *Familiarity with the mathematical, computational, and statistical tools underlying modern social science.* Normally, this requirement is met by passing six courses in mathematics (Mathematics 5A-5B-5C, 6A-6B-6C); one course in

*Students who were in residence prior to July 1, 1968, and who complete their degree requirements prior to July 1, 1972, have the option of following the old degree requirements. For a discussion of those requirements, see the 1967-1968 catalog.

computer science (ICS 1); and two courses in advanced mathematics, statistics, or mathematical social science. Students who wish to do so may substitute Mathematics 2A-2B-2C, 3A-3B-3C for the first six courses in mathematics, provided they subsequently complete at least two quarters of work in probability and statistics. See the section on "Mathematics and Social Science" below.

D. *An understanding of the fundamental concepts, analytical tools, and methods of social science.* Normally, this requirement is met by passing Social Science 1 (a one-quarter course) and two other courses in social science numbered with one-digit course numbers.

E. *An understanding of important advanced areas in social science.* Normally, the requirement is met by passing satisfactorily six upper division courses in the School of Social Sciences.

F. *Satisfactory completion of a senior project.* The senior project is an individually-designed year-long educational program of three courses. Approved for the individual student by a faculty member.

Students are assumed to have the ability to write with lucidity and grace and to read rapidly and with comprehension. Students who lack these abilities should plan (and will be required) to take the formal and informal instruction necessary to overcome these handicaps.

The requirements above are specified in the form of knowledge gained rather than specific courses taken, and the School encourages students to satisfy the requirements by examination. Some students may find it helpful to consider the following typical course program, so long as it is clearly recognized that *it is neither prescribed nor particularly suggested.*

	Fall Quarter	Winter Quarter	Spring Quarter
Freshman	Social Science 1 Mathematics 5A Breadth requirement Breadth requirement	Social Science 2 Mathematics 5B Breadth requirement Breadth requirement	Social Science 4 Mathematics 5C Breadth requirement Breadth requirement
Sophomore	Psychology 10 Mathematics 6A ICS 1 Elective	Economics 10 Mathematics 6B Elective Elective	Sociology 10 Mathematics 6C Elective Elective
Junior	Upper Div. Course Upper Div. Course Mathematics 170A Elective	Upper Div. Course Upper Div. Course Mathematics 170B Elective	Upper Div. Course Upper Div. Course Elective Elective
Senior	Social Science 190A Elective Elective Elective	Social Science 190B Elective Elective Elective	Social Science 190C Elective Elective Elective

Program Degrees

Programs are the basic interdisciplinary subdivisions of the School. They are formed by a relatively anarchic process of organization; but, once formed, they represent curriculum opportunities for students in the School. They have no guaranteed life expectancy. They survive as long as students and faculty in the School find them fruitful. A student *who has qualified for a degree in social science* (see above) may receive a degree by satisfying the requirements within constraints specified by the program and by satisfying any additional requirements imposed by the program.

Discipline Degrees

A student *who has qualified for a degree in social science* (see above) may receive a degree in one of the disciplines (e.g., anthropology, economics, geography, political science, psychology, sociology) if he, *in addition*, passes a general examination in the discipline. Ordinarily the examination will be the Graduate Record Examination Advanced Test in the discipline. Reading lists appropriate for self-study in preparation for the examinations are available from the School office.

Program Planning

Transfer Students

Freshmen and Sophomores. Students transferring to UCI as freshmen or sophomores will fulfill the regular requirements of the four-year program either at UCI or through transfer of 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 freshman and sophomore requirements for the social science curriculum. Students anticipating transfer to UCI in their junior year, however, should attempt to plan their program so as to anticipate the special requirements of the program. Every effort will be made to accommodate individual variation in background, provided the student is prepared to commit himself to intensive work in areas of deficiency.

Normally, the typical two-year program is simply the last two years of the regular four-year program, *except* that students who have not satisfied the freshman and sophomore mathematics requirements in the School must do so before graduation (see the section on "Mathematics and Social Science").

Juniors planning to transfer into the School at the winter or spring quarter will often find that course schedules make it difficult or impossible to complete the program in less than seven or eight quarters of work. Such students should consult with the School as early as possible to determine whether the program they intend to pursue will be feasible.

Seniors. Students wishing to graduate with a degree in the School by transferring 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 such transfers difficult. No student will be admitted to senior status in the School until he has demonstrated the knowledge in Mathematics 5A-B-C and 6A-B-C, or equivalent.

Academic Advisors

Each student majoring in a discipline within the School is assigned to a faculty advisor on entry. Subsequent changes in advisors are made on request of either the student or the advisor. The student is responsible for his own program and for

meeting the requirements for graduation. The advisor provides advice in broad educational planning, help in overcoming bureaucratic impediments to education, and access to the faculty. Students who elect to do so may dispense with a faculty advisor.

Special Programs

Pre-graduate Training. Students planning to pursue graduate work in the social sciences enroll in one of the regular social science programs. In addition, they should supplement their program by anticipating language requirements at major graduate schools and by intensive work in areas outside the School that are of special relevance to their intended graduate work. Such students should consult their advisors to ensure that they make a wise selection of courses within the School.

Information and Computer Science. A special program in information and computer science combines the regular undergraduate work in one of the social science disciplines with additional junior-senior work in computer sciences, mathematics, and engineering.

Pre-law. Students interested in entering law school upon completion of their baccalaureate can major in any of the social sciences. Specific requirements imposed by specific law schools can be met through electives.

Teacher Training. Students interested in preparing for elementary school teaching or for secondary and junior college teaching in the social sciences follow the regular program for majors in the social sciences. They complete their program by electing courses that will satisfy the requirements for teacher certification.

Linguistics. Students at Irvine can major in Linguistics through either Humanities or Social Sciences. In the School of Social Sciences the Linguistics major is required to take the following courses: Linguistics 100, Introduction to Linguistics; Linguistics 103, Syntactic Analysis; Linguistics 104, Computational Linguistics or Psycholinguistics; Linguistics 105, Field Methods in Linguistics. Programs in either Psycholinguistics, Sociolinguistics, or Anthropological Linguistics for the major are tailored to the individual's interests and background and are worked out in cooperation with his advisor.

Administration. Undergraduate degree programs in business and public administration are not offered at UCI. Students preparing for a career in business or government can major in social science. Students particularly interested in business administration are usually advised to concentrate work in economics. Students interested in public administration are usually advised to emphasize economics and political science. In addition, the School offers, in conjunction with the Graduate School of Administration, a special five-year program for select students leading to both a baccalaureate in the social sciences and a master's degree in administration. Application for admission to the program is made in the spring of the junior year.

Mathematics and Social Science

Competence in basic mathematics is a necessary skill for a modern social scientist. Each candidate for a degree in the School of Social Sciences is expected to have knowledge of probability theory, matrix algebra, calculus, difference and differential equations, mathematical statistics, and computing. Normally, this knowledge is gained by pursuing a program of nine courses in mathematics, statistics, computing, and mathematical social science. The first seven courses normally are:

Information and Computer Sciences 1: Digital Computing
Mathematics 5A: Finite Probability
Mathematics 5B: Differential and Integral Calculus
Mathematics 5C: Continuous Probability
Mathematics 6A: Linear Algebra
Mathematics 6B: Differential Equations
Mathematics 6C: Numerical Methods

To complete the requirement, a student normally chooses two courses from an approved list of courses in mathematics, computing, or mathematical social science, most commonly Mathematics 170A-170B.

Students who wish to do so may substitute the knowledge represented by Mathematics 2A-2B-2C and 3A-3B-3C for Mathematics 5A-5B-5C and 6A-6B-6C. However, they will then be expected to complete at least two quarters of work in probability and statistics.

Students entering as juniors (or graduate students) without previous college mathematics are normally enrolled in Mathematics 5A-5B-5C and Information and Computer Science 1 during their first year at UCI. Such students ordinarily enroll in Mathematics 6A-6B-6C and the two additional courses during their second year. An undergraduate transfer student without previous college mathematics will normally need two regular school years of work at UCI to complete the graduation requirement of the School. A graduate student without college mathematics should anticipate that his program will require additional time to complete.

All students are expected to have competence in intermediate algebra on entrance. Competence can be demonstrated by completion of a one-year course in intermediate algebra in high school, junior college, or University Extension, or by a score of 600 on the quantitative part of the College Boards.

Nonmajors

Students from other schools are encouraged to take courses and talk to faculty within the School of Social Sciences. In addition to the introductory courses, many of the special topics courses are open to students without previous work in social science. These courses are described generally below. The individual topics for each quarter are announced at the time of pre-registration.

Courses in the School of Social Sciences

"Courses" in the School do not always resemble the conventional university course either in content or in format. Enrollment in a course is simply a commitment on the part of a student that he will educate himself (with such faculty assistance as is required). Consequently, it is not meaningful to list courses in the usual way.

The School schedules five types of courses:

General Introductory Courses

These courses (one digit courses) are intended to introduce any student to the analytical and descriptive material of social science.

Self-Instructional Courses

The basic introductory courses in each discipline (Anthropology 10, Economics 10, Geography 10, Political Science 10, Psychology 10, and Sociology 10) are primarily self-instructional. The educational activities involved include a wide range of self-pacing work (e.g., reading, computer-assisted learning, films) and are designed to provide a student with a basic introduction to the concepts of the discipline. Other courses are also available on a self-instructional basis.

Special Topics Courses

To supplement the basic courses and to provide both majors and nonmajors (both graduate and undergraduate) with the experience of pursuing a subject in depth, the School offers a number of "special topics" courses. The specific topics to be covered in any quarter are announced at the time of pre-registration. Generally speaking, special topics courses are not repeated each year. Rather, the student samples from those courses available in a particular quarter. In each quarter some special topics courses are open to students without previous work in the discipline. These courses are numbered with numbers between 120 and 189 and between 280 and 289.

Individual Study Courses

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 199 (undergraduate) and 299 (graduate).

Project Courses

A student with the interest and competence to gain from such an experience may, with permission of his advisor, enroll in a senior project course within which he completes a substantial paper. These courses are numbered 190A-190B-190C. Any student may, with approval of the faculty member, undertake a project as an individual study or individual research (199 or 299) course.

GRADUATE DEGREES

The School offers instruction leading to the Ph.D. degree. The degree programs are restricted to full-time students and emphasize preparation for research and academic careers in the disciplines involved.

The doctoral programs are designed to allow each graduate student to develop, in close conjunction with at least three members of the faculty, a course of study resulting in the mastery of a coherent body of empirical and theoretical knowledge to serve as a basis for further creative and fruitful teaching and research. Depending on the student's interests, such a program may range quite widely across disciplines, or resemble the traditional one discipline plus outside field type of arrangement found at most universities.

The faculty envisions a student's Ph.D. program to be of approximately three to four years' duration. The student devotes the first year to the explorations and preparation necessary to defining and mastering a coherent field of study. He continues this preparation into the second year, during the course of which he also submits a dissertation proposal. The third year normally is devoted to dissertation research and writing. In some instances, of course, pre-dissertation work will require more than two years, and especially those dissertations demanding extensive field research may require more than one year to complete. In addition, all students are expected to acquire mathematical and language tools appropriate to their studies. For the mathematical requirements, see the section on "Mathematics and Social Science" above.

For further information on graduate programs, financial aids, and other details, write to the Dean of the School of Social Sciences for the booklet "Graduate Studies in the School of Social Sciences."

SCHOOL OF ENGINEERING

ROBERT M. SAUNDERS
Dean

The School of Engineering offers junior-senior 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 an industry, the government, or a university. Programs at all levels emphasize the fundamentals underlying engineering so as to facilitate future maintenance of engineering competence by either formal or informal study. Thus programs of study in the School of Engineering endeavor to provide UCI graduates with adequate intellectual tools to enter the profession after a short internship and to provide for the continued updating of their technological knowledge in the presence of a rapidly expanding technology and the changing needs of society.

At the undergraduate level, the programs now being offered emphasize electrical and civil and environmental engineering. In the future several other programs will be added. While much of the curriculum will be common to all fields of engineering, opportunity will be afforded students to do elective work in the areas of their special interest. Thus, in the junior and senior years, students will be able to elect courses in addition to those required. It is expected that each student will devote approximately 40% of his time over the four years to the scientific and mathematical backgrounds pertaining to the various engineering fields; the purpose of this intense study of the sciences and mathematics is to make sure that graduates are extremely 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 and less rigidly structured the farther one goes; at the same time specialization becomes more intense the deeper one gets into his educational program. The M.S. program requires nine courses to be completed, but the exact choice of the courses will be a matter of negotiation between the student and his faculty advisor. Thesis or non-thesis programs are available. At the Ph.D. level the program is still less structured but more specialized than at the M.S. level. No courses are required; rather students must demonstrate various competences as they progress toward the completion of their doctoral programs.

Undergraduate Programs

Admission

High school students wishing to begin their engineering programs at UCI should seek admission to one of the schools, preferably the School of Physical Sciences or the School of Social Sciences, whose admission requirements are stated elsewhere in this catalogue. Upon registering, a student will be assigned an engineering advisor who will assist in developing a satisfactory program of study and provide the requisite advice during the freshman and sophomore years.

Junior students are admitted to the School of Engineering upon completion of a freshman-sophomore program in one of the schools at Irvine or at another college, including community colleges. Students seeking admission to the School of Engi-

neering must satisfy the University requirements for admission to advanced standing, have completed 21 courses (84 quarter units) with an overall average of "C" (2.0), and must have completed the specific requirements for the junior courses to be undertaken in the School of Engineering. This means completion of the equivalent of UCI Physics 5E and Mathematics 3C.

Programs of Study

Students should feel free to follow any program they feel is meaningful to them but they should be sure to complete the requisite physics and mathematics for admission to junior courses in engineering and be sure they can meet graduation requirements for the School of Engineering at the end of their alloted collegiate period. Normally a student also will wish to complete the secondary science requirement, the digital computing course, and some of the courses required in fine arts, humanities, and social sciences in the freshman and sophomore years. It would be well for lower division students expecting to proceed to graduate study for the Ph.D. degree to elect a foreign language, preferably German or Russian. Students in community colleges may wish to elect engineering courses in the freshman and sophomore years; such courses while not prerequisite to courses in the School of Engineering will be accepted in satisfaction of the overall elective requirements of the School. *Since UCI elects not to offer freshman and sophomore courses in engineering subjects and since other campuses do, students majoring in one of the schools at Irvine may have difficulty in completing their programs on other UC campuses in six quarters.** For transfer to Irvine there are no prerequisites for junior work in the School of Engineering other than the requisite mathematics and physics courses.

In the junior and senior years the student, by suitable choice of technical electives, may orient his program towards either electrical or civil and environmental engineering. Representative programs which satisfy the requirements listed on p. 17 are shown in Figures 1 and 2.

Students in the School of Engineering should bear in mind the general campus policy which permits them to take courses in non-contiguous areas on "passed-not passed" basis. Non-contiguous areas with respect to engineering are those in fine arts, humanities, and social sciences.

It should be emphasized that the programs of study in the School of Engineering are tailor-made to the desires and objectives of individual students. Students will work out programs of study with their faculty advisor so as to maximize the educational experience offered by the Irvine campus. Students must realize that they, and 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. A student may substitute courses of his choosing for those required if he can substantiate the merits of his academic plan and obtain the approval of the Faculty of the School.

* Students expecting to transfer elsewhere should consult with the School of Engineering immediately upon entry.

FIGURE 1—*Typical* program leading to the B.S. and M.S. degrees in Engineering (Electrical)

	FALL	WINTER	SPRING
FRESHMEN	*Math* 2A *ICS*-1 *Chem* 1A *HSSFA* (a)	*Math* 2B *Phys* 5A *Chem* 1B *HSSFA* (a)	*Math* 2C *Phys* 5B *Chem* 1C *HSSFA* (a)
SOPHOMORE	*Math* 3A *Phys* 5C *HSSFA* (a) Free Elec.	*Math* 3B *Phys* 5D *HSSFA* (a) Free Elec.	*Math* 3C *Phys* 5E *HSSFA* (a) Free Elec.
JUNIOR	Math Elec. (c) *Engr.* 100A *Engr.* 101A *HSSFA* (b)	Math Elec. *Engr.* 100B *Engr.* 101B *HSSFA* (b)	Math Elec. *Engr.* 102 *Engr.* 103 *HSSFA* (b)
SENIOR	Free Elec. *Engr.* 104A Engr. Elec. Engr. Elec.	Free Elec. *Engr.* 104B Engr. Elec. Engr. Elec.	Free Elec. *Engr.* 104C Engr. Elec. Engr. Elec.
M.S.	Math Elec. Graduate Graduate	Math Elec. Engr. Engr.	Math Elec. Elec. Elec.

FIGURE 2—*Typical* program leading to the B.S. in Engineering (Civil and Environmental)

	FALL	WINTER	SPRING
FRESHMEN	*Math* 2A *ICS*-1 *Chem* 1A *HSSFA* (a)	*Math* 2B *Phys* 5A *Chem* 1B *HSSFA* (a)	*Math* 2C *Phys* 5B *Chem* 1C *HSSFA* (a)
SOPHOMORE	*Math* 3A *Phys* 5C *Biol.* 100A Free Elec.	*Math* 3B *Phys* 5D *Biol.* 100B Free Elec.	*Math* 3C *Phys* 5E *Biol.* 100C Free Elec.
JUNIOR	*Engr.* 100A *Engr.* 101A Tech Elec. *HSSFA* (b)	*Engr.* 100B *Engr.* 101B *Engr.* 162 *HSSFA* (b)	*Engr.* 103 *Engr.* 155 *Engr.* 163 *HSSFA* (b)
SENIOR	*Engr.* 104A *Engr.* 150A Tech Elec. Math Elec. (c)	*Engr.* 104B *Engr.* 150B Tech Elec. Math Elec. (c)	*Engr.* 104C *Engr.* 150C Tech Elec. Math Elec. (c)

(a) Humanities, Social Sciences, or Fine Arts elective

(b) Recommended Courses: An upper division sequence in Social Sciences (may be taken in sophomore year)

(c) Mathematics electives must be upper division sequence

Proficiency Examinations

A student who thinks himself 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 he must do to demonstrate his proficiency and gain credit. Normally, his ability will be demonstrated by a written or oral examination, but if a portion of his capability involves laboratory exercises, he 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.

Graduate Programs

Graduate study in the School of Engineering permits delving into a subject in considerable depth while at the same time developing breadth. Graduate study toward the M.S. and Ph.D. degrees is applied-science oriented and should provide an excellent base for future professional growth through excellent understanding of the basic phenomena associated with the student's chosen field.

Admission

Admission to graduate standing in the School of Engineering is generally accorded those possessing a B.S. degree in engineering or an allied science 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. The Graduate Record Examination is required.

The Master of Science in Engineering

Those wishing to pursue graduate work in the area of electrical engineering will find programs in control systems, plasma physics, quantum electronics, communication and information systems, automatic pattern recognition, optical systems, digital computer systems, and optimization theory. In the civil and environmental engineering area there is at present a program in water quality and resources. For the M.S. degree with thesis, nine courses will be required, of which at least six are graduate level courses; a maximum of two research courses may be submitted. For the M.S. degree without thesis nine courses will be required, of which at least six are graduate level and may not include research credit. The M.S. thesis must be an exercise demonstrating a capability of undertaking a study original with the student and carry it through to a conclusion satisfactory to at least three members of the faculty. For those students electing to study for the M.S. without thesis, a comprehensive exercise demonstrating familiarity with a broad aspect of the field of engineering in which they are majoring will be required. Master of Science programs must be completed in four calendar years from the date of admission.

The detailed program of study is worked out with an advisor who takes into consideration the objectives of the candidate, his preparation, and the specific and implied requirements of the faculty of the School. Part-time students will be limited to one course per quarter if fully employed and those holding research or teaching assistantships will not be permitted a full four-course load. Engineers in industry may find it convenient to complete some undergraduate courses in University Extension at one of the centers. Courses taken on another campus of the University will be accorded full credit if taken after admission to Irvine; up to three courses will be credited upon admission if taken in Extension or on another campus of the University, or in another university.

The Doctor of Philosophy in Engineering

As is common in other schools and colleges, the doctoral program in engineering leading to the Ph.D. will be tailored to the individual needs and backgrounds of the student. There will be no course requirements but rather several milestones to be passed: (1) admission to the Ph.D. program by the faculty of the School; (2) passage of the preliminary examination assessing the student's background and his potential for success in the doctoral program; (3) satisfaction of the teaching requirements required of all doctoral students; (4) research preparation including languages; and (5) completion of a significant research investigation. The degree is granted upon the recommendation of the Doctoral Committee and the Dean of the Graduate Division. Throughout the doctoral program it is expected that the student will be 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 will be available so that each doctoral student, after he has passed the preliminary examination, will have a staff appointment in the School of Engineering.

Special Programs

Teacher Training

Students interested in preparing for a secondary and junior college teaching credential in an allied and contiguous field may follow the regular program for engineering majors. They complete their total program by satisfying the requirements for a secondary or junior college credential in the fifth year. Students interested in this program should contact the Office of Teacher Education at the time they enter the School of Engineering.

Administration

Undergraduate degree programs in business and public administration are not offered at UCI. Engineering students wishing to prepare for a career in business or government can major in engineering and elect those prerequisite courses required for the program of study in the Graduate School of Administration. Students interested in engineering administration are advised to make this desire known early in their collegiate career.

Information and Computer Science

Both graduate and undergraduate students may participate in the courses and programs offered in this interdisciplinary area. Students wishing to pursue a program of study at the graduate or undergraduate level should consult with their advisor.

Engineering Faculty

PAUL D. ARTHUR, *Professor of Aerospace Engineering, Associate Dean, School of Engineering*
CASPER W. BARNES, JR., *Professor of Electrical Engineering*
NEIL J. BERSHAD, *Associate Professor of Electrical Engineering*
BLAIR E. BONA, *Lecturer in Electrical Engineering*
RICHARD R. BROCK, *Assistant Professor of Civil Engineering*
RALPH B. CONN, *Lecturer in Electrical Engineering*
BYRON N. EDWARDS, *Lecturer in Electrical Engineering*
HIDEYA GAMO, *Professor of Electrical Engineering*
CHARLES G. HILTON, *Lecturer in Engineering*
DAVID ISAACS, *Associate Professor of Electrical Engineering*
ROBERT C. K. LEE, *Associate Professor of Aerospace Engineering*
PAUL G. MORANDA, *Lecturer in Engineering*
ROBERT M. SAUNDERS, *Professor of Electrical Engineering, Dean, School of Engineering*
JAN W. S. SCHERFIG, *Assistant Professor of Civil Engineering*
ROLAND SCHINZINGER, *Assistant Professor of Electrical Engineering*

KHALIL SEYRAFI, *Lecturer in Electrical Engineering*
JACK SKLANSKY, *Professor of Electrical Engineering and Information and Computer Science*
EARLE L. STEELE, *Lecturer in Electrical Engineering*
ALLEN R. STUBBERUD, *Associate Professor of Electrical Engineering*
ALEXANDER TAKACS, *Lecturer in Engineering*
DAVID T. TUMA, *Assistant Professor of Electrical Engineering*

Undergraduate Courses in Engineering

100A-100B Lumped Parameter Analysis (1-1) fall, winter
Prerequisite: Physics 5C, Math 3C, ICS 1 (May be taken concurrently)
Analytical methods for the treatment of systems which can be described by total linear or nonlinear differential equations. Rigid body mechanics, electrical networks, pneumatic devices, and hydraulic elements.

101A-101B Continuous Media and Fields (1-1) fall, winter
Prerequisites: Physics 5E, Math 3C, or consent of instructor
Introduction to the concepts of scalar and vector fields and methods of solving boundary value problems. Examples are drawn from electromagnetic, heat conduction, and fluid fields.

102 Signal Theory (1) fall, spring
Prerequisite: Engr. 100B
Representation of signals—Fourier series, Fourier and Laplace transforms, orthogonal representation. Convolution integral, sampling theory, introductory communication theory, amplitude and phase modulation and demodulation, signal correlation.

103 Energetics (1) spring
Prerequisite: Engr. 101B
Classical thermodynamics and application to the flow of energy. Energy conversion from one state to another. Conservation of energy and momentum principles and their applications. Gauss' Law, Poynting theorem, and Manley-Rowe relationship.

104A-104B-104C Engineering Design (1-1-1) fall, winter, spring
Prerequisite: Engr. 100B, 103
Specifications, natural constraints, and optimization; optimization topics, calculus of variations, Lagrange multipliers, steepest descent, linear and nonlinear programming methods; reliability theory and practice; system simulation methods; annual design project.

110A-110B-110C Electronics (1-1-1) fall, winter, spring
Prerequisites: Physics 5D or consent of instructor
Properties of semi-conductors, junction diodes and transistors, the band theory of semiconductors, small signal transistor amplifiers, wave forming and shaping circuits, pulse circuits, linear operational amplifiers, and various integrated circuits.

***111A-111B-111C Network Analysis and Synthesis** (1-1-1) fall, winter, spring
Prerequisite: Engr. 100A
Definition of signal and waveforms, derivation of network equations, application of transform methods to network analysis and synthesis. Synthesis of one-port and two-port network, approximation method for transfer function synthesis. Synthesis of transfer function and feedback networks. Application of probability and random theory to stochastic design, frequency domain, and time domain synthesis.

112 Active Electronic Circuits (1) spring
Prerequisite: Consent of instructor
Interaction of active and passive devices in electronic circuits including equivalent circuit modeling of transistors, device-circuit-environment interactions, design of single-stage amplifiers, cascaded stages, coupling problems and frequency response, and power amplifier design.

113A-113B-113C Analysis and Design of Integrated Circuits (1-1-1) fall, winter, spring
Prerequisites: Physics 5C or equivalent
Fundamentals of monolithic and hybrid circuit design, processing and fabrication. Integrated circuit packaging. Basic semi-conductor principles. Large signal models. Bipolar and MOS logic circuits, small-signal models linear circuits, thin/thick film analysis and design. Introduction to computer aided design of integrated circuits.

***115A-115B-115C Systems Engineering** (1-1-1) fall, winter, spring
Prerequisite: Engr. 126A-B-C, Math. 130A-B-C
Definition of the systems engineering process and its interface with operations research. Emphasis placed upon those mathematical optimization techniques and those probability theory concepts which find application during the design, development, and evaluation of systems.

117A-117B Reliability Engineering (1-1) fall, winter
Prerequisites: Engr. 126A or consent of instructor
Statistical and probabilistic aspects of reliability of engineering. Discussion of series, parallel, and combination systems. Analysis of systems with dependent components. Majority voting, redundant codes, adaptive schemes, and redundancy in digital systems. Reliability models and statistical parameter estimation. Analysis of multi-mode systems with drift, marginal, catastrophic failures.

122 Introduction to the Logic & Organization of Digital Computers(1) fall
Prerequisite: ICS 1
Introductory course in digital computer organization. Representation of information and information-processing algorithms; formal representation of digital systems; logic components, building blocks, internal algorithms, and programming systems.

123A-123B Computer and Systems Programming (1-1) winter, spring
Prerequisite: Engr. 122
Machine language programming and systems programming from the point of view of the computer system architect. Addressing techniques, assembly systems, sorting and converting data, program segmentation and linkage, service programs, supervisors, schedules, and translators.

124A-124B Switching Circuits and Computer Logic (1-1) winter, spring
Prerequisite: Engr. 122
Introduction to switching circuits for computers, representations (codes, geometric forms); implementation (switching networks, storage elements), and digital systems. Basic characteristics of combinatorial and sequential networks.

126A-126B-126C Random Processes and Systems Theory (1-1-1) fall, winter, spring
Prerequisite: Engr. 102
Fundamental theories of probability and stochastic processes from an engineering viewpoint. Application of the theory to the analysis of the response of linear and non-linear systems to stochastic inputs.

***130A-130B-130C Materials and Fields** (1-1-1) fall, winter, spring
Prerequisite: Engr. 101B
Interaction of electromagnetic fields with materials. Maxwell's equations applied to dielectrics, magnetic materials, metals, semi-conductors, superconductors, and plasmas. Applications in engineering systems.

131 Introduction to Electrical Gas Discharges (1) spring
Prerequisite: Engr. 101A-B
An introduction to the macroscopic and microscopic behavior of electrical discharges in gases.

134 Mechanics of Materials (1) fall
Prerequisite: Math 3C
An introduction to the mechanics of solids. Normal and shear stresses, normal and shear strains, principal direction, stress-strain relations, strain energy, virtual work, torsion, elastic stability, elementary theory of beam bending.

138A-138B-138C Masers, Lasers, and Modern Optics (1-1-1) fall, winter, spring
Prerequisites: Engr. 101B or Physics 112B
Maser and laser devices and their applications in optical systems. Spontaneous and stimulated emission, optical spectra, and laser devices. Interference and coherence. Diffraction theory and optical resonator. Theory of dispersion and crystal optics. Modulation and detection of light beam.

140A-140B-140C Control System Theory (1-1-1) fall, winter, spring
Prerequisite: Engr. 102
Linear methods including Laplace transforms, convolution integrals, transfer function, pole-zero topics, stability, frequency response, compensation. Nonlinear methods including linearization techniques such as tangent, piecewise, and first harmonic methods; phase spaces, analogue and digital computers. Sampled data systems including sampling processes, z-transform, stability criteria, and digital compensation.

146A-146B Astrodynamics and Rocket Navigation (1-1) fall, winter
Prerequisite:
Practical application of celestial mechanics and allied fields to the navigation, guidance, and control of space vehicles and to related classical problems in astronomy.

150A-150B-150C Structural Mechanics (1-1-1) fall, winter, spring
Prerequisite: Engr. 134, 154 (may be taken concurrently)
Analysis of structural members including beams, columns, trusses, and rigid frames. Design of steel and reinforced concrete structures. Ideal truss analysis, shearing force and bending moments for beams, deflection (due to axial, bending, shearing, and torsional deformations), statically indeterminate structures.

***154 Soil Mechanics** (1) fall
Prerequisite: Engr. 134
An introduction to the 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.

155 Fluid Mechanics (1) spring
Prerequisite: Engr. 101B
Basic 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.

156 Compressible Flow (1) spring
Prerequisite: Engr. 155
An introduction to the inviscid compressible flow of a gas. Applications to channel flow, Fanno, and Rayleigh flows. Oblique shock waves, detached shock waves, external linearized supersonic flows, hypersonic approximations and implications of viscosity.

162 Fundamentals of Environmental Engineering (1) spring
Prerequisites: Engr. 155, 163 (may be taken concurrently)
Introduction to basic principles of hydrology, collection, and conveyance of water. Water and waste water volumes, groundwater flow, hydrologic cycle, water distribution and waste water collection, hydraulic machinery.

163 Fundamentals of Water, Waste, and Air Treatment (1) spring
Prerequisites: Chem 1A-B-C, Biology 100A-B-C
Introduction to the unit operations and processes of water and waste treatment. Quality criteria for water use and waste disposal. Fundamentals of physical, chemical, biological treatment. Design of unit processes.

195A-195F The Engineer and Engineering (½-½-½) fall, winter, spring
Prerequisites: None (can be started in any quarter)
A seminar course simultaneously involving students from freshmen to graduate students presenting subjects germane to the practice of engineering and not normally involved in other courses. (May not be used to satisfy graduation requirements for the School of Engineering or the School of Physical Sciences.)

198 Group Studies for Undergraduates (1)
Prerequisite: Consent of instructor
Group study of selected topics in engineering.

199 Individual Study (½ or 1)
Prerequisite: Consent of instructor
For undergraduate engineering majors in supervised but independent reading or research on engineering topics of current interest.

Note: Courses outside of engineering (e.g. Information and Computer Science) may qualify as engineering electives. Consult the Dean's office.

*Not to be offered in 1969-70.

Graduate Courses in Engineering

***210 Fourier Optics** (1) winter
Prerequisites: Engr. 101A-B, 102
Fourier integral representations of spatial signals. Plane-wave expansions. Diffration theory. Fourier transforming and imaging properties of lenses. Spatial-frequency analysis of optical systems. Spatial filtering and optical information processing. Holography.

***211 Theory of Partial Coherence** (1) spring
Prerequisites: Engr. 210, 126A-B-C (Engr. 126C can be taken concurrently)
Statistical description of fields. Mutual coherence and mutual spectral density. Response of linear optical systems to partially coherent fields. Quasi-monochromatic fields. Incoherent sources. Optical imaging with partially coherent light. Optical detectors and photo-count statistics. Heterodyne detection. The Brown-Twiss effect.

213A-213B-213C Quantum Electronics (1-1-1) fall, winter, spring
Prerequisites: Engr. 138C and Physics 130, 131
Quantum theory of electromagnetic field, interaction of radiation with matter and coherence properties of radiation based on density matrix techniques. Laser dynamics and spectroscopy of laser materials. Nonlinear optical processes with applications to optical electronic devices and systems.

220A-220B-220C Pattern Recognition (1-1-1) fall, winter, spring
Prerequisites: Math 130A-B-C or Engr. 126A-B-C
The theory and design of machines that detect and recognize patterns in geometric images,

sounds, and sequences of symbols. Among the topics included are: threshold logic, training theory, multilayer machines, artificial intelligence, stochastic approximation, unsupervised training, spatial computers, image filters, and topological processing.

***221A-221B Trainable Automata** (1-1) winter, spring

Prerequisite: Math 130A-B-C or Engr. 126A-B-C

Markov chain models of learning phenomena in pattern recognizing machines and human signal detection; trainability, adaptivity, train-work scheduling, single-operator model, and stimulus sampling theory. Convergence properties of training algorithms; training without a teacher, game-theoretic iteration; adaptive sample set construction; trainable committee machines; stopping rules.

***225A-225B-225C Decision, Detection and Estimation Theory** (1-1-1) fall, winter, spring

Prerequisites: Engr. 126A-B-C

The techniques of statistical decision theory as applied to deriving optimum strategies for the receipt of information-bearing signals. Applications to the problems of the detection of signals and the estimation of signal parameters.

226A-226B-226C Communications and Information Theory (1-1-1) fall, winter, spring

Prerequisites: Engr. 126A-B-C

Principles of optimum communication over additive Guassian noise channels via optimum receiver design and optimum signal selection. Study of important communication channel models and an introduction to waveform communication. Information theory, entropy, encoding of information, Shannon's coding theorems, mutual information, channel capacity, implementation of some coded systems.

231A-231B Guided Electromagnetic Waves (1-1) fall, winter

Prerequisites: Engr. 101A-B, 130A

Analysis and design of components and networks for guided electromagnetic waves, with emphasis on the microwave regions.

240A-240B-240C Modern Control Theory (1-1-1) fall, winter, spring

Prerequisites: Engr. 140A-B-C, Math 140A-B-C

Formulation of optimal control theory for deterministic systems. Necessary and sufficient conditions for the existence of solution to the optimal and sub-optimal problem. Computational methods for solution and the feasibility of implementation. The use of approximation theory and functional analysis concepts for formulation and solution of optimization problems.

241A-241B-241C Stochastic Control Systems (1-1-1) fall, winter, spring

Prerequisites: Math 130A-B-C, Engr. 240A-B-C

Fundamental estimation theory, sequential estimation and estimation errors. Error analysis of stationary and non-stationary systems. Classical Wiener filter and prediction theory in mean square optimization. Optimal Bayesian control. Stochastic stability and control. Adaptive control systems and methods of identification.

242A-242B-242C Game Theory for Systems Analysis (1-1-1) fall, winter, spring

Prerequisites: Engr. 115C, 126C, Math 143C

Presentation of classical game theory concepts of n-person general sum games, coalitions, differential and stochastic games. Applications to the decision process, control, and resource allocation in engineering, economic, and management systems.

244A-244B-244C Optimization Theory (1-1-1) fall, winter, spring

Prerequisites: Engr. 104C or consent of instructor

Indirect (analytical) and direct (search) methods of optimization: Classical methods of the calculus and Lagrange multipliers, geometric, linear, integer, quadratic, nonlinear programming, stagewise optimization and dynamic programming. Necessary and sufficient conditions algorithms, numerical examples, and sensitivity analyses for each of the foregoing.

***225A-225B-225C Hydrodynamics** (1-1-1) fall, winter, spring

Prerequisites: Engr. 155 or equivalent

Mechanics of viscous and inviscid fluid motion with emphasis on incompressible fluids. Laminar flow; Stokes and Oseen problems, laminar boundary layer, diffusion of vorticity, laminar instability; potential flow, conformal mapping, surface waves, perturbation theory, jets, stability; turbulence, Reynolds stresses, turbulent boundary layer, phenomenological theories.

263A-263B-263C Advanced Water Treatment & Resources Technology (1-1-1) fall, winter, spring

Prerequisites: Engr. 162, 163, 104A-B-C

Design and evaluation of unit elements in water resources systems. Topics in surface water and groundwater hydrology. Physical, chemical, and biological treatment methods. Reuse of waste waters and ultimate disposal of non-reusable waters. Emphasis on cost and efficiency of alternative processes.

***265A-265B Water and Air Treatment Chemistry** (½-½) fall, winter

Prerequisites: Chemistry 1A-B-C, Engr. 163.

Inorganic and organic chemistry of water and wastes. Emphasizes the chemistry of natural waters, quality changes from contact with soil, supersaturation phenomena and complex equilibria. Chemistry or organic pollutants including pesticides and their degradation products. Emphasizes theory and practice of analytical procedures.

***266 Public Health Aspects of Environmental Engineering** (1) winter

Prerequisites: Biology 1A-B-C

Public health aspects of water engineering. Aquatic microbiology. Virology. Bacteriological water quality standards. Water borne diseases. Principles of epidemiology and toxicology.

268A-268B-268C Environmental Resources Systems—Planning, Design & Evaluation (½-½-½) fall, winter, spring

Prerequisites: Engr. 104A-B-C, Math 130A, Engr. 263A-B-C or consent of instructor

Fundamentals of planning small and large civil engineering systems. Emphasis on optimization of integrated water collection, waste treatment, and water reuse systems. Qualitative and quantative design criteria for public works. Economic evaluation of alternative systems.

285A-285B-285C Methods of Engineering Analysis (1-1-1) fall, winter, spring

Prerequisites: Math 143C or 144B

Development of the theory of 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.

298 Group Seminars or Studies (varies) fall, winter, spring

Prerequisite: Consult section instructor

Group studies on various subjects related to engineering given through seminars on topics to be selected each quarter.

298-4 Quantum Electronics (½)
298-5 Communication Theory (½-1)
298-6 Trainable Picture Processing (½)
298-7 Coherence Theory & Optical Detection (½)
298-8 Mathematical Methods in Engineering

299 Individual Study or Research (may be repeated each quarter) (1-1-1) fall, winter, spring

Prerequisites: Determined by instructor

Individual research or investigation under the direction of an individual faculty member.

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* Not to be offered in 1969-70.

INTERSCHOOL CURRICULA

PROGRAM IN COMPARATIVE CULTURE

"Culture" may be defined as that complex whole of knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society. A "society" refers to a group of people who have learned to work together, a "culture" to the distinctive ways of life of such a group of people; "society" is made of individuals, "culture" of what happens in their consciousness, in their emotions, and in their habits of behavior. The crucial changes taking place in "society" very often first take place in "culture," which lies behind society in providing its motives and methods.

Since World War II, a rebellion against departmentalized knowledge has been one of the most remarkable developments in American universities. The possibilities of cooperation between disciplines have been tested and developed in many areas. The study of culture has in common with the development of collaborative study in other areas the conviction that interdisciplinary investigation is essential; its proponents believe that a particular civilization or culture, with all its diversity, has a certain underlying homogeneity which can serve as a unifying key to the interpretation of diverse phenomena.

The Program in Comparative Culture conducts cultural investigation by: (1) drawing together the special techniques of separate disciplines as represented in all the Schools and Departments of the University; (2) focussing on the character of single cultures or cultural styles; and (3) illuminating the particularities of any culture by studying it cross-culturally—i.e., through the perspective of other cultures.

Thus, the major in Comparative Culture will: (1) gain competence in interdisciplinary inquiry by becoming acquainted with the methods of the Social, Physical, and Biological Sciences, the Humanities, and the Fine Arts; and he will focus these upon the consideration of problems best identified and solved by the use of interdisciplinary, cross-cultural, and multi-cultural methods of study; (2) concentrate on the study of one culture (eight quarters of course work); (3) take, comparatively, course work in the study of two other cultures (a total of eight quarters of course work).

The cultures represented in the Program are African culture, American culture, Asian culture, Black culture, and Chicano culture. By special arrangement other areas of culture study—Latin-American culture, Comparative Literature, Western Civilization, for instance—may be counted toward the major.

The student will design his own program within these. Should he be interested in ethnic minorities in American culture, for instance, he would probably take courses in American culture, Black culture and Chicano culture; or should his interest lie with Third World Culture, he would study Asian culture, African culture, Black culture. He will achieve competence in a language related to his areas of specialization and satisfy the requirements of the program in which he specializes.

African and Comparative Culture

The continent of Africa and her peoples have recently come into global prominence for various reasons other than the traditional view that they provided a sector for economic and societal exploitation. With the discovery of Professor Leakey's

Homo habilis in 1964, Africa won recognition as the ancestral origin of man and the historical source of the universality of human brotherhood. The emergence of modern nations on the continent, on the other hand—especially those controlled by previously-colonialized Africans—provided an interracial climate for contemporary international relations, as well as a stimulant for a regenerated "pride in blackness." Furthermore, the global implications of the contest among developmental ideologies —capitalism, communism, socialism, and humanism—have kept Africa and her people (be they in Algeria, Nigeria, or Namibia) in sharper focus. In spite of the foregoing, however, there are many students who lack the information necessary for an accurate assessment of the impact of the historical and contemporary realities of Africa upon their lives and the values they cherish and abhor. It is, in part, to correct this void, as well as to contribute to a more comprehensive curriculum in higher education, that this dimension to the study of human relations is offered.

The established disciplines, such as economics, political science, history, literature and sociology, will serve as the basis for the study of Africa; it is hoped, however, that an interdisciplinary approach will be encouraged so as to strengthen designs for depth and supplementary analyses from the focus of any one academic discipline or combination of disciplines.

African and Comparative Culture Faculty

GEORGE O. ROBERTS, *Professor of Sociology and African and Comparative Culture*

Undergraduate Courses in African Culture

100 Social Structure and Change in Sub-Sahara Africa (1) fall MR. ROBERTS
Comparative analysis of societies which have recently emerged from colonial rule and of those seeking indigenous self-determination. (Special focus upon Guinea, Ghana, Nigeria, Congo-Kinshasa, Tanzania, Zambia, and Namibia.)

101 History of Western Africa (1) fall MR. ROBERTS
A survey of the major events and personalities which influenced the nature of social organization and change in the region of the ancient empires of Ghana, Mali, and Songhay before 1945.

102 Social Structure and Change in the Middle East (1) winter MR. ROBERTS
A survey of the impact of religion, politics, colonialism, and acculturation upon developments in the Middle East since 1914. (Special examination of societies in Saudi Arabia, Syria, Israel, United Arab Republic, Tunisia, and Algeria.)

103 Southern Africa and Human Rights (1) winter MR. ROBERTS
Examination of the history and contemporary significance of restrictive social norms in South Africa, Rhodesia, Angola, and Mozambique.

104 History of Eastern Africa (1) spring MR. ROBERTS
A survey of the major events and personalities which influenced the nature of social organization and change in Ethiopia, Somalia, Uganda, Kenya, Zanzibar and Tanganyika before 1945.

199 Directed Reading (1-1-1) fall, winter, spring MR. ROBERTS

American and Comparative Culture

During his first two years each student should ground himself in areas that will lead toward a broadly comparative study of American culture. He would elect, therefore, the following areas: the traditions of western literature (e.g., CL 50 A-B-C, etc.) and philosophy (e.g., Philosophy 20 A-B-C, etc.) the history of American culture (e.g., History 50 A-B-C, etc.), as well as of another culture (e.g., History 40, 60, 70, or 80 A-B-C). He should begin to achieve competency in one foreign language and civilization (e.g., Foreign Language 1 and 2 A-B-C or its equivalent and 110, Civilization, or its equivalent in another department such as History). He should understand the fundamentals in social science (e.g., Social Change and Development; Soc. Sci. 3; Introduction to Anthropology, Economics, Psychology, or Sociology, all numbered 10.

Finally, he should recognize the important impacts of biological and natural sciences upon modern culture by studying science, especially in its cultural settings. He would fulfill the prerequisites thereby to take such courses as Introduction to Psychobiology (Psychobiology 150), Seminar in Psychobiology (151), Learning and Memory (154), and The Biological Sciences and Public Policy (180); History of Science (History 90 A-B-C); and courses in Physics (e.g., Contemporary Physics: Physics 103), and related courses. He should recognize, too, the methodological emphasis which scientific pursuits have encouraged, and take, or prepare to take, such courses as: Introduction to Analysis (Social Science 1), Lectures in Literary Theory and Criticism (CL 101), History and Historians (History 100), Classical Historians and Historiography (Classics 141), Introduction to Digital Computation and its successive courses (ICS 1-3), Statistics for Culture Study (Black Culture 102) or Chicano Statistics (Chicano Culture 107).

Upper Division Requirements

American and Comparative Culture is conducted through programs, problem posing, and problem-solving in subjects and area particularly suited to interdisciplinary and multi-cultural methods of inquiry. This will take place, centrally, in American and Comparative Culture core courses required of all majors in both the junior and senior years.

In addition to the basic requirement of the core courses, each student will regard course competence in the following areas as a minimum:

1. Competence in visual techniques of cultural analysis as in the study of architecture, art and technology, art history, drama, and dance, play or gesture, regarded theoretically as revealing ritual, cultural activities.
2. Competence in the language and the literature of one other culture, either in the original or translation.
3. Three quarters of course work in American literature, at least one of which must deal with literature before 1900.
4. Three quarters of course work in American history, at least one of which must deal with the period before 1900.
5. At least three quarters of course work in the social sciences.
6. Familiarity with the critical, mathematical, computational, analytic, and historiographic tools necessary for pursuit of cross-cultural inquiry.
7. Core courses in interdisciplinary studies required in junior and senior years (6 quarters).

American and Comparative Culture Faculty

PETE E. CLECAK, *Assistant Professor of English and Comparative Literature*

JAMES FLINK, *Associate Professor of American and Comparative Culture*

JAMES E. MCMICHAEL, *Assistant Professor of English and Comparative Literature*

JAY MARTIN, *Professor of English and Comparative Literature and American and Comparative Culture and Director of Program in Comparative Culture*

KEITH L. NELSON, *Assistant Professor of History*

SPENCER OLIN, *Associate Professor of History*

MYRON SIMON, *Associate Professor of English and Comparative Literature*

DICKRAN TASHJIAN, *Assistant Professor of English and Comparative Literature and American and Comparative Culture*

Undergraduate Courses in American and Comparative Culture

100A-B-C Expressions of the American Experience (1-1-1) fall, winter, spring STAFF

A three-quarter sequence devoted to the study of the major documents in American history, literature, politics, and philosophy, from 1620 to the present. The books studied will include: William Bradford, *Plymouth Plantation,* Benjamin Franklin, *Autobiography, The Federalist Papers,* Jonathan Edwards, *Sermons,* Alexis de Tocqueville, *Democracy in America,* Thoreau, *Walden,* Clarence King, *Mountaineering in the Sierra Nevada,* Twain, *A Connecticut Yankee in King Arthur's Court,* William James, *Pragmatism,* John Dos Passos, *USA.*

Required of American Culture majors.

101A-B-C Impressions of the American Experience (1-1-1) fall, winter, spring, MR. TASHJIAN

A three-quarter sequence devoted to the study of the major forms of American visual experience. Objects studied will include: Puritan house and fort building, gravestone symbolism, the development of mass art, painting, sculpture, architecture, cartooning, advertising, technological art.

Required of American Culture majors.

102A American Communities (1) winter MR. FLINK

A study of the American community from both historical and cross-cultural perspectives. Emphasis is upon the historical development of various forms of community life in American civilization and upon comparison of these forms of community life with one another and with selected forms of community life found in other cultures.

102B American Communities (1) spring MR. FLINK

An interdisciplinary examination of American community culture and American attitudes toward community in the twentieth century. Prerequisite: American Communities 103A.

103A-B-C Modern American Literature (1-1-1) fall, winter, spring MR. MARTIN

A three-quarter sequence beginning in 1900 and continuing to contemporary writers, including Edith Wharton, Stephen Crane, Theodore Dreiser, Ernest Hemingway, T. S. Eliot, Hart Crane, Nelson Algren, Edmund Wilson, Ralph Ellison, Norman Mailer, Robert Lowell, Nathanael West, Henry Miller, and more recent writers.

104A Nineteenth Century American Ethnography (1) winter MR. FLINK

Examination of major interpretations of American society and culture from the Revolution to the late nineteenth century with emphasis upon intersectional differences and similarities and the emergence of a distinctively American national character.

104B Twentieth Century American Ethnography (1) spring MR. FLINK

Examination of major interpretations of modern American society and culture with emphasis upon the impact of urbanization and industrialization upon traditional lifeways and the interrelationships among contemporary institutions.

105A-B-C The University and American Culture (1-1-1) fall, winter, spring MR. BELL, MR. OLIN, MR. SHAPIRO

A research course into the relations of higher education to American culture, focussing in particular on the University of California. This course will begin with a historical survey of the functions of higher education in America, equip the student with research methodologies, study the University in all its aspects, and conclude by the design of alternative futures for higher education.

199 Directed Reading (1-1-1) fall, winter, spring STAFF

Asian Culture

Basic Requirements for the Concentration

a) Nine courses in Chinese and/or Japanese language.
b) Three courses in basic Chinese-Japanese history and civilization.
c) Three upper division courses in Asian Studies.
d) Two-quarter interdisciplinary *Senior Seminar* in Asian Studies.

The student concentrating in Asian Studies would be encouraged to take a reasonable number of courses as offered under History and the Social Sciences which pertain significantly to Asia, and also to select another major cultural area for the purpose of comparative cultural analysis.

Asian Culture Faculty

GEORGE W. KENT, *Associate Professor of Asian and Comparative Culture*

ELIZABETH MAY E. LOH, *Lecturer in Chinese*

Undergraduate Courses in Asian Culture

100A-B Introduction to Chinese Civilization (1-1) fall, winter MR. KENT

Beginnings to ca. 900; 900 to present.

100C Introduction to Japanese Civilization (1) spring MR. KENT

1A-B-C Modern Chinese (1-1-1) fall, winter, spring MRS. LOH

2A-B-C Modern Chinese (1-1-1) fall, winter, spring MRS. LOH

101A-B-C Literary Chinese (1-1-1) fall, winter, spring MR. KENT

102A Chinese Thought

Not offered 1969-70.

103A Contemporary China

Not offered 1969-70.

104A Great Literature of East Asia

Not offered 1969-70.

110A-B Senior Seminar
Not offered 1969-70.

199 Directed Reading (1-1-1) fall, winter, spring — MR. KENT

Black Culture

The program in Black Culture is designed to investigate the Black experience in America. It concentrates, particularly, on questions of Black identity, urban problems, civil rights legislation, and Black literature, psychology, and history. Necessarily, such work will require field work and community activities as a part of the educational program. Students interested in this program should consult with its coordinator, Joseph L. White.

Black Culture Faculty

O. L. E. MBATIA, *Acting Assistant Professor of Economics and Black and Comparative Culture*
LOUISE M. MERIWETHER, *Lecturer in Black and Comparative Culture*
CARLTON MOSS, *Lecturer in Black and Comparative Culture*
LOU SMITH, *Lecturer in Black and Comparative Culture*
JOSEPH L. WHITE, *Professor of Psychology and Black and Comparative Culture*

Undergraduate Courses in Black Culture

100A-B-C Contemporary Problems (1-1-1) fall, winter, spring — MR. SMITH
This course will deal with problems related to race and poverty and will involve field work and participant-observation in programs like Operation Bootstrap and Core in Los Angeles and Orange Counties.

101A-B Economics of Discrimination (1-1) fall, winter — MR. MBATIA
Studies of occupational ceilings, job penetration and other factors involving economic discrimination.

102 Statistics for Culture Study (1) fall — MR. MBATIA
A survey of the interpretation of statistical reports and other documents related to the analysis of culture.

103A-B Urban Problems (1-1) winter, spring — MR. MBATIA
Analysis of problems of minorities in the city; this course will require field observation and analysis.

104 Black Literature (1) winter — MISS MERIWETHER
A reading course in the leading black writers; this will be supplemented with lectures by visiting black novelists, poets and other writers.

105 The Image of the Black Man in American Films (1) winter — MR. MOSS
A history of the portrayal of the black man in American films from *Birth of a Nation* to the present.

106 Workshop in Urban Film-making (1) spring — MR. MOSS
Continuation of Black Culture 105. This course will provide instruction in the techniques of film-making and require each student to make a film dealing with minority or urban problems.

Chicano Culture

The program in Chicano Culture explores the experience of the Chicano in American society, particularly in California and the Southwestern United States. Studies of agricultural and urban problems, the character and crisis of Chicano identity, the relation of the Chicano to Civil Rights legislation, and educational problems of the Chicano provide the focus of this program. Course work will involve participant-observation in Orange County.

Chicano Culture Faculty

RICHARD ALATORRE, *Lecturer in Chicano and Comparative Culture*
RAUL A. FERNANDEZ, *Assistant Professor of Economics and Chicano and Comparative Culture*

Undergraduate Courses in Chicano Culture

100A-B Chicano Identity (1-1) fall, winter — MR. ALATORRE
A study of the psychology, history, politics, background, and sociology of the modern Chicano.

101 Economics of the Labor Movement (1) fall — MR. FERNANDEZ
Studies of the economic conditions of labor, particularly those involving the Chicano.

102 The Chicano and Civil Rights (1) fall — MR. ALATORRE
The relation of Civil Rights legislation to the Chicano community.

103 Agricultural Economics (1) winter — MR. FERNANDEZ
Studies of the economics of present-day agriculture, particularly as related to the conditions of the Chicano in California and the Southwest.

104 Economic Development (1) winter — MR. FERNANDEZ
Studies in the economics of development. The focus will be on the Latin-American.

105 Politics in the Chicano Community (1) winter — MR. ALATORRE
The political habits, behavior, and goals of the Chicano community. This course will involve field reports on current political activities.

106 Contemporary Mexican-American Problems: 1920-1969 (1) spring — MR. ALATORRE
Studies in the sociology of the barrio and agricultural communities.

107 Chicano Statistics (1) spring — STAFF
The principles of statistics. The material for study will be drawn from matters concerning the Chicano community.

DEPARTMENT OF INFORMATION AND COMPUTER SCIENCE

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 the conventional arithmetic operations of addition, subtraction, multiplication, and division. 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.

Undergraduate Program

The undergraduate program in information and computer science is designed both for students preparing for professional careers and for students preparing for graduate study in information and computer science. The program 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 he will require 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 theme of the program. As in all UCI undergraduate programs the undergraduate student in information and computer science will normally spend about half of his time in general education and the other half of his time in courses required by the department.

Undergraduate degree programs in information and computer science are a relatively new development in a relatively new field. The development of such programs is based on the premise that a special program in the field can provide a better preparation for students who will be concerned with the problems of information and computer science and that the field is now sufficiently developed to fruitfully support such a program.

Joint Program with the Graduate School of Administration. The Department of Information and Computer Science and the Graduate School of Administration offer a special five-year program for selected students leading to both a bachelor of science degree in Information and Computer Science and a master of science degree in Administration.

Graduate Program

The doctoral program is designed to prepare teachers and researchers in information and computer science. The program consists of four major parts: thorough preparation in computer programming and programming languages; introduction to additional topics in and relevant to information and computer science; intensive study in an area of specialization offered by the department or an area offered in conjunction with the doctoral program of another department; and dissertation research and documentation.

Admission to the Program. About ten students will be admitted each year. Applications will be evaluated on the basis of their prior academic record and their potential for creative research and teaching in information and computer science. Applicants are expected to have: (1) skills in computer programming at least equivalent to those obtained by good students in a one-year college-level course in programming, and (2) skills in mathematics equivalent to those obtained by good students who complete college-level courses in logic and set theory, analysis, linear algebra, and modern algebra or probability and statistics.

Degree Requirements. *Preliminary studies.* Demonstration of understanding and competence in advanced algorithmic analysis; programming languages, translators, and programming systems; and other selected topics in information and computer science. This requirement can be completely or partially satisfied by examination or by successful completion of the courses offered in these fields. *Specialization.* Demonstration of exceptional competence in an area of specialization. Initially the following fields will be available: programming languages, translators, and programming systems; heuristic programming; theory of computation, finite automata, and formal languages; pattern recognition. *Examinations.* Typically toward the end of his fourth quarter in residence, a preliminary appraisal of the student's progress will be made. This appraisal will be based on the student's performance in the first year of his program. Typically toward the end of the seventh quarter in residence, the student will be examined on his understanding of the field and his area of specialization. *Dissertation.* Completion and documentation of a research project which represents a substantial contribution to information and computer science. *Foreign language.* Ability to read scientific papers (with the aid of a dictionary) in Russian, Chinese, Japanese, German, or French.

Service Courses

Students interested in digital computer programming will normally begin their studies with Introduction to Digital Computation and continue in the programming sequence with Computers and Programming and Information Structures 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. Short courses in particular computer languages will also be available, and the student who has mastered the topics in the programming sequence should be able to learn any of these languages in such short courses.

ICS Faculty

BOYD, J. P., *Assistant Professor of Anthropology and Information and Computer Science*

BROWN, J. S., *Assistant Professor of Information and Computer Science*

FARBER, D. J., *Lecturer in Information and Computer Science*

FELDMAN, J., *Professor of Psychology and Information and Computer Science and Chairman of the Department of Information and Computer Science*

SIKLOSSY, L., *Assistant Professor of Information and Computer Science*

SKLANSKY, J., *Professor of Electrical Engineering and Information and Computer Science*

TONGE, F. M., *Professor of Administration and Information and Computer Science*

Associated ICS Faculty

BORK, A. M., *Professor of Physics and Information and Computer Science*

BROWN, G. W., *Professor of Administration and Information and Computer Science and Dean of the Graduate School of Administration*

GERARD, R. W., *Professor of Biological Sciences, Special Advisor to the Vice Chancellor—Academic Affairs*

GORDON, R. M., *Lecturer in Administration and Information and Computer Science*
SHARPE, W. F., *Professor of Economics*
TARTER, M.E., *Associate Professor of Medicine and Mathematics*
WEXLER, K. N., *Acting Assistant Professor Psychology*

Introductory Courses in ICS

ICS 1. Introduction to Digital Computation.
No prerequisite

ICS 2. Computers and Programming.
Prerequisite: ICS 1

ICS 3. Information Structures.
Prerequisite: ICS 2

Advanced Courses in ICS

ICS 110A-110B Programming Languages and Systems.
Prerequisite: ICS 3.

ICS 120A-120B Computer Organization.
Prerequisite: ICS 2

ICS 130A-130B Formal Models in Information and Computer Science.
Prerequisite: Math 2C

ICS 180 Special Topics
ICS 190A-190B-190C Senior Seminar.
ICS 199 Individual Studies.

Graduate Courses in ICS

ICS 200A-B-C-D-E-F Proseminar in Information and Computer Science
ICS 210A-B-C Advanced Algorithmic Analysis
ICS 220A-B-C Programming Languages, Translators, and Systems
ICS 250 Seminar in Programming Languages, Translators, and Systems
ICS 251 Seminar in Artificial Intelligence
ICS 252 Seminar in Automata Theory
ICS 253 Seminar in Formal Languages
ICS 254 Seminar in Pattern Recognition.
(Same as Engineering 220)

ICS 255 Seminar in Self-organizing Systems.
(Same as Engineering 221)

ICS 252 Seminar in Computer Architecture
ICS 257 Seminar in the Economics of Computation
ICS 258 Seminar in the Social and Economic Implications of Computers and Automation
ICS 259 Seminar in Optimization Techniques
ICS 260 Seminar in Computational Linguistics
ICS 261 Seminar in Numerical Analysis
ICS 262 Seminar in Models of the Brain
ICS 270 Workshop in Programming Languages, Translators, and Systems

ICS 271 Workshop in Artificial Intelligence
ICS 272 Workshop in Automata Theory
ICS 273 Workshop in Formal Languages
ICS 274 Workshop in Pattern Recognition
ICS 275 Workshop in Self-organizing Systems
ICS 276 Workshop in Computer Architecture
ICS 280 Special Topics in Information and Computer Science
ICS 298 Thesis Supervision
ICS 299 Individual Study

DEPARTMENT OF PHYSICAL EDUCATION

Classes in physical education are available to all students on an elective basis but are not required for graduation. Courses will be counted toward a degree at the rate of one-sixth of a course per class up to a total of one course credit.

Emphasis is placed on activities having lifetime values and those of particular interest in Southern California.

All sports facilities will be open for the recreational use of students and staff when not occupied by classes, athletic teams, or other scheduled events.

Physical Education Faculty

GARY L. ADAMS, *Lecturer in Physical Education*
LINDA B. DEMPSAY, *Junior Supervisor of Physical Education*
ALBERT M. IRWIN, *Associate Supervisor of Physical Education*
MYRON MCNAMARA, *Lecturer*
EDWARD H. NEWLAND, *Lecturer in Physical Education*
RAYMOND H. THORNTON, *Chairman and Director of Athletics*
TIMOTHY M. TIFT, *Lecturer in Physical Education*

Courses in Physical Education

1A-1B-1C Physical Education (1/6-1/6-1/6) fall, winter, spring
May be repeated.
Sections in badminton, body building, rowing, fencing, golf, gymnastics, handball, judo, lifesaving, scuba diving, squash racquets, swimming, tennis, volleyball, water polo, water safety instruction, individual exercises for women, equitation and horsemanship, sailing, and weight training.

UNIVERSITY STUDIES

The University Studies program is an organization of Fellows and Senior Fellows of the Irvine faculty dedicated to interdisciplinary undergraduate education. As Fellows and Senior Fellows, faculty members are independent of their membership in various academic divisions of the campus. It is their aim to provide a faculty organization and curriculum that is antidivisional while at the same time it is friendly to the Irvine arrangement of disciplines into schools. At the present time the faculty offers an interdisciplinary series of classes called University Studies I, II, and III. The course is limited to freshmen except for those sophomores who are completing a sequence of three classes begun during their freshman year.

Faculty members engaged in the program expect to make themselves available to students not merely as specialists but as specialists who have a particular interest in how their own research and their discipline in general are related to other

disciplines, to contemporary society, and to philosophical issues of the day. Each University Studies class explores a specific issue or problem; each teacher develops a program of readings, experiments, and discussions.

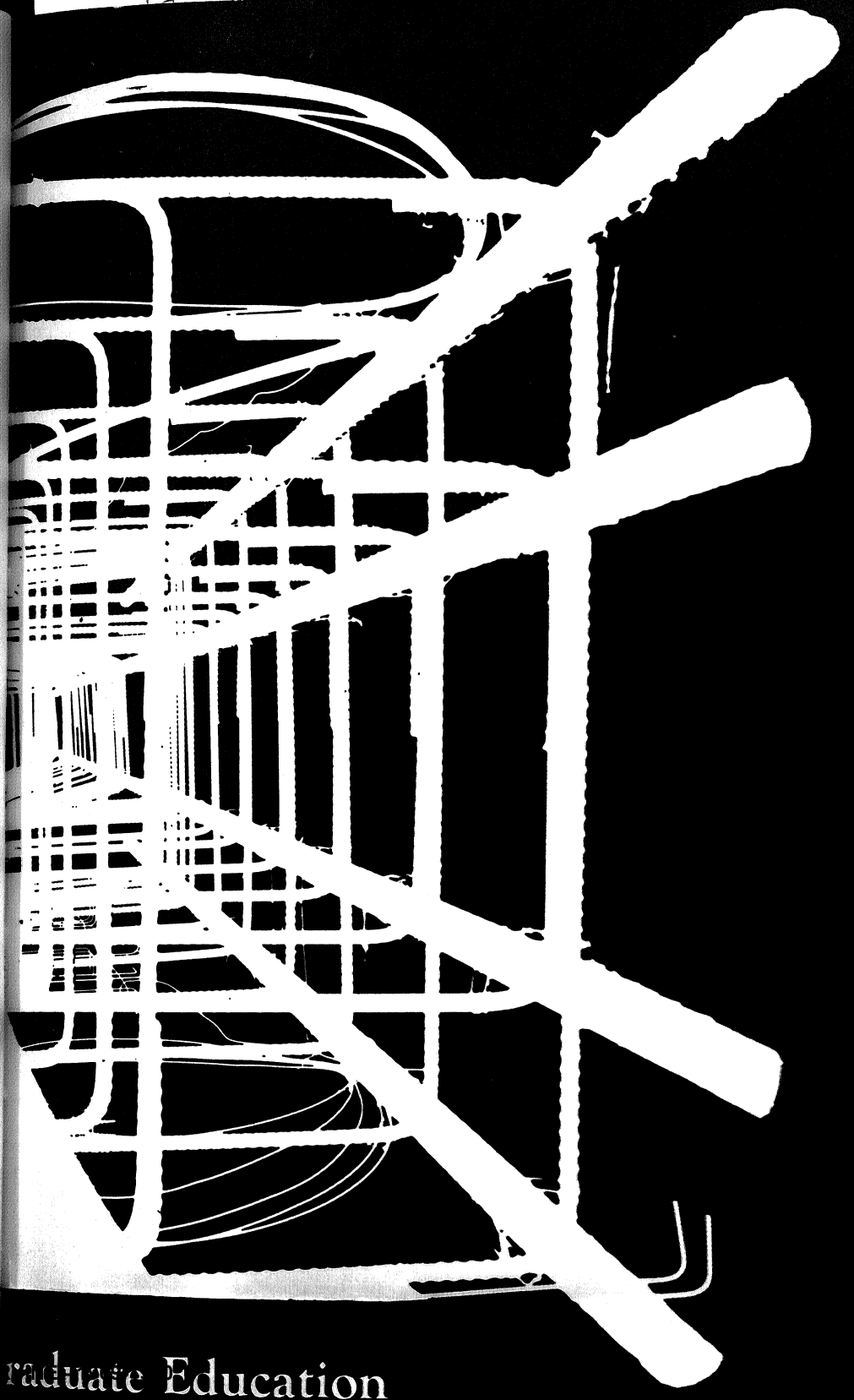
Announcement of specific courses to be offered in 1969-1970 is made in a brochure published in the preceding June.

Senior Fellows

HAZARD ADAMS, *Professor of English (Chief Senior Fellow)*
MICHAEL COLE, *Associate Professor of Psychology*
KENNETH W. FORD, *Professor of Physics*
RALPH W. GERARD, *Professor of Biological Sciences*
ALEXEI A. MARADUDIN, *Professor of Physics*
ARTHUR J. MARDER, *Professor of History*
JAMES L. MCGAUGH, *Professor of Psychobiology*
ROLAND SCHINZINGER, *Assistant Professor of Electrical Engineering*
H. COLIN SLIM, *Associate Professor of Music*
GROVER C. STEPHENS, *Professor of Biological Sciences*

Undergraduate Courses

University Studies I, II, III (1-1-1)
An interdisciplinary course open to freshmen and sophomores who began the sequence in the freshman year. The nature of specific sections is described in the University Studies brochure. Completion of three quarters of the course may be used to fulfill in part the Irvine breadth requirement.



GRADUATE DIVISION

KEITH JUSTICE
Dean

Graduate study is a major aspect of the academic activity of the University of California, Irvine. Appropriate graduate degrees at the Master's and Doctor's levels, both those emphasizing the creative arts and creative scholarship and those emphasizing technical proficiency, are offered. The graduate student will be given full opportunity to further his development in a chosen discipline, by course and seminar work and by research and other creative work to achieve excellence in such resources as English, foreign languages, mathematics, bibliography, and computer techniques; to develop some knowledge of the history of his broad area of interest; and to acquire some understanding of higher education in this country and some guided experience in teaching.

Admission to the Graduate Division is by the Graduate Dean on the advice of the department. A Bachelor's degree, or the equivalent, with adequate coverage and academic excellence, is a prerequisite. Students are invited to consult the department of interest for details on necessary background; deficiencies can sometimes be overcome by taking further specified undergraduate work. Requirements for good standing and for the award of a higher degree are those of the University of California as a whole, supplemented by specific requirements of the Graduate Division, the school, and the department of specialization.

The Master's Degree

The M.A. or M.S. is normally attained by one of two routes: Plan I, a thesis; and Plan II, a comprehensive examination. Both require normally one year of residence on the campus, a foreign language as specified by the department, a certain number of courses maintained at a B average, and an appropriate demonstration of achievement. Plan I includes course work, a certain number of which must be at the graduate level, a thesis, and, usually, general examination in the particular field of study. Under Plan II, further course work replaces the thesis, and a more searching examination is administered. Opportunities for special preparation in teaching, as well as guided experience in actual teaching, will be offered by most departments. Other Master's degrees, awarded for professional competence and often requiring more extended work, are also offered. School and departmental statements should be examined for details.

The Doctor of Philosophy

This 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. It is not a reward for diligence but an indication of critical judgement, synthetic understanding, and imaginative creativity. The dissertation is expected to demonstrate such abilities. Other Doctor's degrees, marking professional attainment, and with correspondingly different emphasis, are also being offered. The M.D. is offered through the California College of Medicine, now part of the Irvine Campus.

The candidate for the doctorate is expected to be in full-time residence on the campus for two years. Three to five years of full-time academic work beyond the

Graduate Education

baccalaureate is normally required to complete the degree. During the first year or two of graduate work, the student is normally guided by a departmental advisor. When judged ready by the department, often aided by preparatory examinations, the student is encouraged to qualify for candidacy for the Doctor's degree. At this time, a committee is appointed by the Graduate Dean, which henceforth supervises his graduate program.

ADMISSION TO GRADUATE STATUS

Students seeking admission to graduate status on the Irvine campus must hold a Bachelor's degree or its equivalent from an institution of acceptable standing. The Dean of the Graduate Division and the department of specialization evaluate applications for admission in terms of scholastic qualifications and formal preparation for the graduate field of study.

Application forms for admission to graduate status are available upon request from the Office of Graduate Admissions, University of California, Irvine, California 92664. For applicants residing in the United States, applications must be on file no later than July 1 for the fall quarter 1969, November 1 for winter quarter 1970, and January 1 for spring quarter 1970. Applicants interested in financial support should apply not later than February 1, 1970 for the following year.

The Graduate Division requires *two* complete sets of official records covering all work attempted, together with official evidence of degrees conferred, from all institutions of college level attended, including any campus of the University of California, regardless of length of attendance. To be official, records must bear the Registrar's signature and the seal of the issuing institution, and be sent directly from the issuing institution. A summary of credit transferred and recorded on the transcript record 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, registration cannot be permitted.*

One set of transcripts of record and all other official credentials are retained permanently in the files of the Graduate Division for applicants accepted for admission, and they may not be withdrawn and used by students for any purpose. The second set is forwarded to the appropriate department, retained there, and may be used by the student in conferring with departmental advisors.

Each application must be accompanied by a $10.00 application fee in the form of a check, draft, or money order for the exact amount and made payable to The Regents of the University of California. In order to process applications in time for the scheduled registration days, it is necessary that complete and official transcripts be received before the above deadlines. Applications received after these deadlines will be considered only if time and circumstances permit and may be deferred for consideration for the following quarter. In any case the applicant may be liable for the additional late registration fee of $10.00. In cases where students have work in progress by the deadline dates given above, final transcripts covering such work must be received before registration may be permitted. Such applicants will be considered on an individual basis and special late registration dates may be assigned.

A formal notice of admission or rejection is sent to each applicant as soon as possible after his application and complete records are received. Therefore, all applicants are advised to await notification of admission from the Graduate Division before making definite plans or arrangements for attending the University.

For further information regarding the Graduate Division please refer to the *Graduate Division Announcement.*

GRADUATE SCHOOL OF ADMINISTRATION

GEORGE W. BROWN
Dean

The Graduate School of Administration 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. Among others, these roles include corporate managers, program directors, federal executives, state and local officials, urban and regional planners, administrators for all levels of the education 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 can be found 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.

These considerations point clearly toward the need for a *general* professional and academic education that integrates the contributions of a variety of disciplines and perspectives toward handling these common administrative problems, whatever their specific organizational locale. The kind of generalist who should emerge from this experience should also be a *specialist* in two respects: he should have a reasonably thorough grasp of typical organizational patterns in *one* of several institutional realms having its own particular conditions and problems; and he should be able to approach organizational phenomena and problems from the perspective of a particular discipline or interdisciplinary area or a set of technical tools or methods developed beyond minimal required competence.

The M.S. program is intended to increase the likelihood that future leaders will be able to communicate effectively and move 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 the usual academic and research objectives.

Owing to the unusual nature of the initial mission of the Graduate School of Administration and to the relatively small faculty which is anticipated during the early years, *it will not be possible to admit part-time degree candidates.* The integrated course program for the first year of the M.S. candidate makes it highly unlikely that an adequate education could be obtained on the course-by-course basis possible in other institutions. A full-time student is one who is *not* carrying a regular full-time job off campus and who enrolls for *not less* than three courses per quarter (or their course equivalent).

Educational Objectives

In this age of major social change and expansion of knowledge, no formal educational program can hope to do more than (a) provide as thorough a grounding as possible in what appear to be enduring intellectual requirements, and (b) encourage and help the future leader to become a continuing learner. Hence a major

objective is to bring formal learning into line with the reality of rapid changes in the state of knowledge. Heavy emphasis must be placed on the development of the individual's capacity for acquiring, using, and evaluating the knowledge necessary for, and related directly to, the making and implementing of organizational decisions.

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:

1. *General Knowledge: The Broad Context of Organizations and Management:* The mid-Twentieth Century (significant trends, conditions, and problems); history of science, scientific inquiry, and the philosophy of science; economic, political, and social analysis.
2. *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.
3. *Specific Knowledge of Particular Arenas of Administration:* Depth study of educational, governmental, or business-industrial organizations. (Sub-specialties; for example, the administration of scientific and research enterprises.)
4. *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.
5. *Technical Bases of Management:* Planning and 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.
6. *General Skills:* Political skills, effective management of interpersonal relations, leadership strategies and tactics, and competence in oral, graphic, and written expression.
7. *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.

The following are some of the major kinds of learning experiences that will be stressed: seminars; independent reading and tutorial relationships; self-instruction; faculty-student research partnerships; in-service training; use of computer technology; small group experiments; the case and comparative study methods; simulation; oral, graphic, and written expression; technical report writing; contact with practitioners; exercises in application of basic tools and techniques; teaching experience; and interdisciplinary team activity.

General Requirements

In addition to the general University of California rules governing admission to graduate study, the Graduate School of Administration normally requires:

1. The Graduate Record Examination (verbal and quantitative parts).
2. Subject matter preparation:
   a. mathematics through calculus.
   b. elementary statistics.
   c. economics: one year of introductory study.
   d. psychology or sociology: one year of introductory study.
   e. political science: one year of introductory study.
3. A previously prepared paper (research report, essay, case study) which is indicative generally of the applicant's interests and capabilities.

Note: While some minor deficiencies in the above entrance requirements may not disqualify otherwise admissible applicants, the Graduate School of Administration expects such applicants to indicate the steps they would take to remove these deficiencies prior to the beginning of the fall quarter of their first year in residence. (Students with major deficiencies in these entrance requirements could be admitted for a period of one year as "Limited Status" students in order to devote full time to making up these deficiencies in appropriate undergraduate courses on campus. Those anticipating enrolling as Limited Status students should apply for admission to the Undergraduate Admission Office. Subsequent admission to the graduate programs in the Graduate School of Administration would be dependent upon the quality of work undertaken as a Limited Status student.)

Admission inquiries should be addressed to the Graduate Admissions Office of the UCI Graduate Division. Applicants for Ph.D. programs are requested to complete all phases of the application procedure by March 15. Those applying for the M.S. program are requested to complete applications prior to April 15.

Degree Programs

For the most part, degree requirements are stated in terms of meeting desired educational outcomes rather than in terms of a number of courses or credit hours. At the beginning of the first year of study, a systematic appraisal of the candidate's current level of preparation in core disciplines and techniques will be undertaken as a guide for future decisions. At any time, the student may be exempted from required portions of his program by examination or other forms of certification.

The Master of Science in Administration

This program of study will normally take two full academic years, including, for most candidates, related work during either or both of the summers preceding the first and second years. Beyond the prescribed common first-year program, the second-year continuing seminar in the areas of specialization, and the required Workshop in Administrative Problem-Solving (for first and second-year students), electives may be chosen on the basis of an evaluation of the candidate's general preparation in terms of the objectives of a professional degree. It is also expected of M.S. candidates that they will engage in teaching experiences during some portion of their two-year program.

In addition to the two-year 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 "three-two" program with the approval of the Graduate School of Administration and of the appropriate undergraduate unit, for example, School of Social Sciences, the School of Engineering, or the Department of Information and Computer Science. Students in such a program will spend their first three years in the cooperating field, followed by two years in the Graduate School of Administration. Successful completion of requirements in this program leads to a bachelor's degree in the cooperating field, usually after the fourth year, and a Master's degree in Administration after the fifth year. Students contemplating entering such a three-two program should contact the Graduate School of Administration prior to, or early in, the start of their junior year, for the purpose of program consultation.

The Doctor of Philosophy in Administration

Given the objectives and educational activities associated with the Ph.D. degree, it is likely that at least three and probably four years (beyond the Bachelor's degree) of approximately full-time effort will be required. Whether all of this time will be spent "in residence" in the technical sense will depend in part on the pattern of in-service training or field research, or both. Beyond the extensive preparation in core disciplines and areas of technical competence acquired in the Graduate School of Administration M.S. program (or satisfactorily equivalent preparation), the Ph.D. must qualify as a skilled researcher and complete a significant exercise demonstrating these skills.

Students whose ultimate degree objective is the Ph.D. in Administration will normally enroll in the M.S. program unless they have already completed a substantial amount of closely related graduate work. Admission to candidacy for the Ph.D. will be on the basis of a qualifying examination, normally not to be taken before the end of two years of full-time study.

Courses of Study—All M.S. Candidates

First Year

The first year of study 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.

Required

1. 200 **Foundations of Administration**
2. 280 (Section 1) **Workshop in Administrative Problem-Solving**

Electives

Within the context created by prior preparation and the workload obligations of the required first year courses, students are encouraged to begin to intensify their study in a particular *discipline* (e.g., economics, psychology, mathematics, engineering, geography) or in a particular *cross discipline field* (e.g., operations research systems analysis, organizational behavior, regional planning). Students aiming toward the Ph.D. degree will need to begin to prepare themselves intensively in research design and methods, either through formal courses or collateral reading.

Second Year

The major emphases in the second year will be on the development of specialized knowledge relevant to particular institutions (i.e., education, business, or government 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.

Required

1. 210 (Section 1, 2, or 3) **Continuing Seminar in Education, Business-Industry, or Government**
2. 280 (Section 1) **Workshop in Administrative Problem-Solving**
3. A seminar in one of the disciplines or a given interdisciplinary area.

Electives

During the second year additional courses might be selected that would further the particular goals and interests of the individual student. These courses could be chosen from among seminars on Advanced Study in Special Topics (280 Series), Independent Reading and Research (299 Series), and Seminars in other departments and schools outside the Graduate School of Administration.

GSA Faculty

GEORGE W. BROWN, *Dean of the Graduate School of Administration, Professor of Administration and Information and Computer Science*

LYMAN W. PORTER, *Associate Dean of the Graduate School of Administration, Professor of of Administration and Psychology*

A. BRADLEY ASKIN, *Assistant Professor of Administration*

COLIN E. BELL, *Assistant Professor of Administration*

ROBERT E. BICKNER, *Lecturer in Administration, Research Economist in the Public Policy Research Organization*

ROBERT DUBIN, *Professor of Administration and Sociology*

HENRY FAGIN, *Professor of Administration, Research Administrator in the Public Policy Research Organization*

JULIAN FELDMAN, *Professor of Psychology and Information and Computer Science*

GORDON J. FIELDING, *Assistant Professor of Geography and Administration*

ROBERT M. GORDON, *Lecturer in Administration, Director of Computer Facility and Information Service*

JOHN C. HOY, *Senior Lecturer in Administration and Vice Chancellor—Student Affairs*

STEPHAN KARAMARDIAN, *Associate Professor of Administration and Mathematics*

MEI LIANG O. KATO, *Assistant Professor of Administration*

KENNETH L. KRAEMER, *Assistant Professor of Administration, Assistant Research Administrator in the Public Policy Research Organization*

JAMES G. MARCH, *Professor of Psychology and Sociology*

ALEXANDER M. MOOD, *Professor of Administration, Director of the Public Policy Research Organization*

RICHARD C. SNYDER, *Professor of Administration and Political Science*

FRED M. TONGE, *Professor of Administration and Information and Computer Science*

JOHN WALLACE, *Associate Professor of Administration and Psychology*

Courses in GSA

200A, 200B, 200C Foundations of Administration

(Credit equivalent of three courses per quarter.) This course consists of three sequences. Sequence I and II will each require approximately four hours weekly of formal meeting time, and Sequence III will require approximately two hours weekly.

Sequence I: Quantitative Methods for Administration

Topics covered in this Sequence include: statistical inference, operations research techniques,

computer technology and information processing, and simulation and gaming.

Sequence II: Organization Theories and Models

This Sequence will focus on the description, analysis, and comparison of organizations, using points of view from such core disciplines as economics, political science, psychology, and sociology.

Topics covered in this Sequence include: environments of organizations; organizational goals and objectives; the structure of organizations; theories of management, leadership, and motivation; decision-making and problem-solving; interpersonal relationships and group influences; and inter-organizational relationships.

Sequence III: Administrative Technology

This Sequence will focus on administrative tools and techniques applied to such fundamental managerial activities as planning, organizing, staffing, budgeting, and coordinating.

Topics covered in this Sequence include: finance and accounting, manpower management, constituency analysis, operations management, policy analysis, decision processes, and information systems.

210A, 210B, 210C (Sections 1, 2, 3) Continuing Seminar in Education, Business-Industry, or Government

(Credit equivalent of one course per quarter.) The Continuing Seminar will be divided into three sections, each led by one or more faculty members. The sections will be devoted to an intensive exploration of a particular institutional area and its associated problems. Stress will be placed on a basic understanding of institutional policies, structures and processes, environmental challenges, and problems of growth and change. All three quarters of a particular section are required.

210A-B-C, Section 1: Educational Administration
210A-B-C, Section 2: Business-Industrial Administration
210A-B-C, Section 3: Public Administration

280A, 280B, 280C (Section 1) Workshop in Administrative Problem-Solving

(Credit equivalent of one course per quarter.) This course provides an opportunity to exercise appropriate quantitative, behavioral, and technical skills in meeting and solving management problems from a variety of institutional situations. The Workshop is required of all M.S. students in the Graduate School of Administration, both in the first and second years.

280A, 280B, 280C (Sections 2, 3 . . .): Advanced Study in Special Topics

Each quarter a limited number of optional special topic seminars will be offered on the basis of program needs and availability of faculty time. Examples of possible topics: Urban Research and Policy Planning; Interactions of Government and Business; Social Budgeting in Critical Policy Areas; Management of Research and Development; Regional Planning; Informational Systems; Dynamic Decision Processes; Optimization Methods.

299A, 299B, 299C: Independent Research and Reading

Supervised research and reading chosen on the basis of individual need. Variable credit.

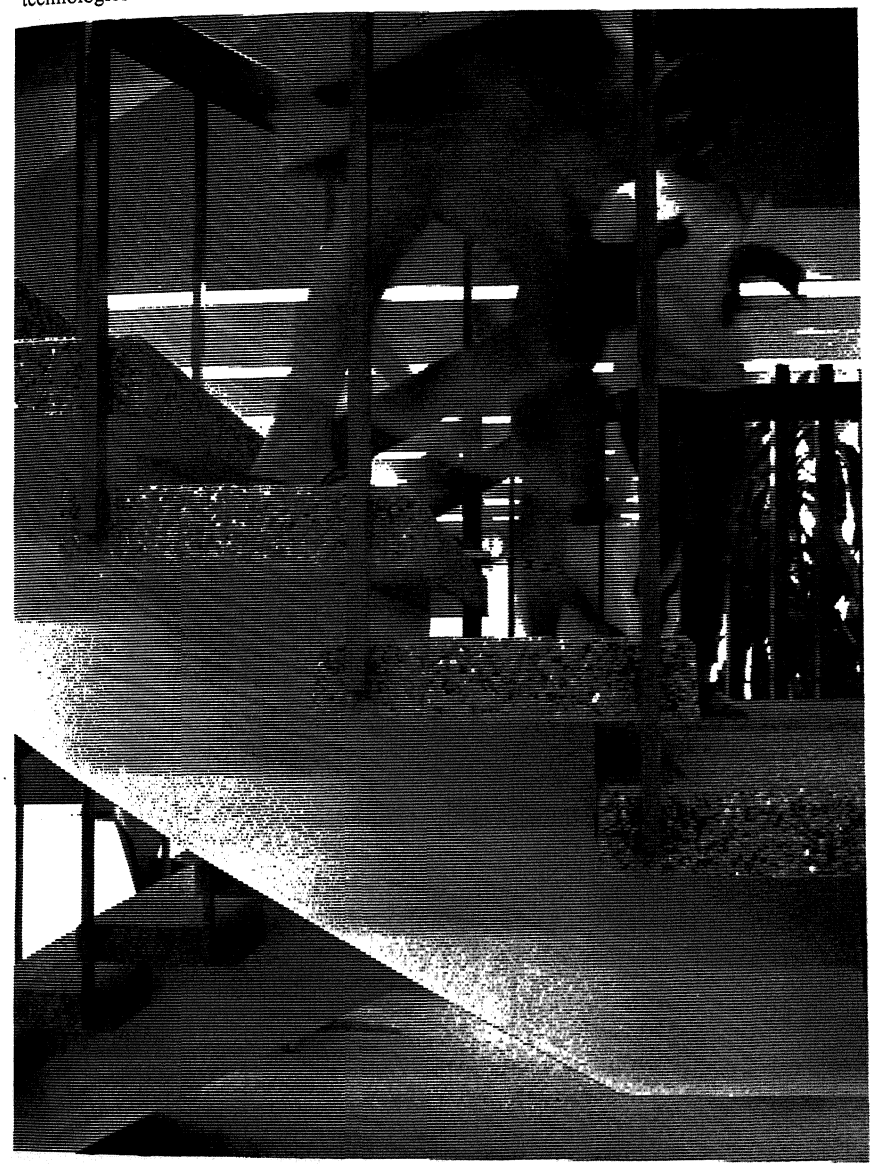
Seminars in departments of schools outside of Graduate School of Administration. Students are encouraged to enroll in whatever courses will meet their special interests or requirements. Enrollment is usually subject to approval of the instructor involved.

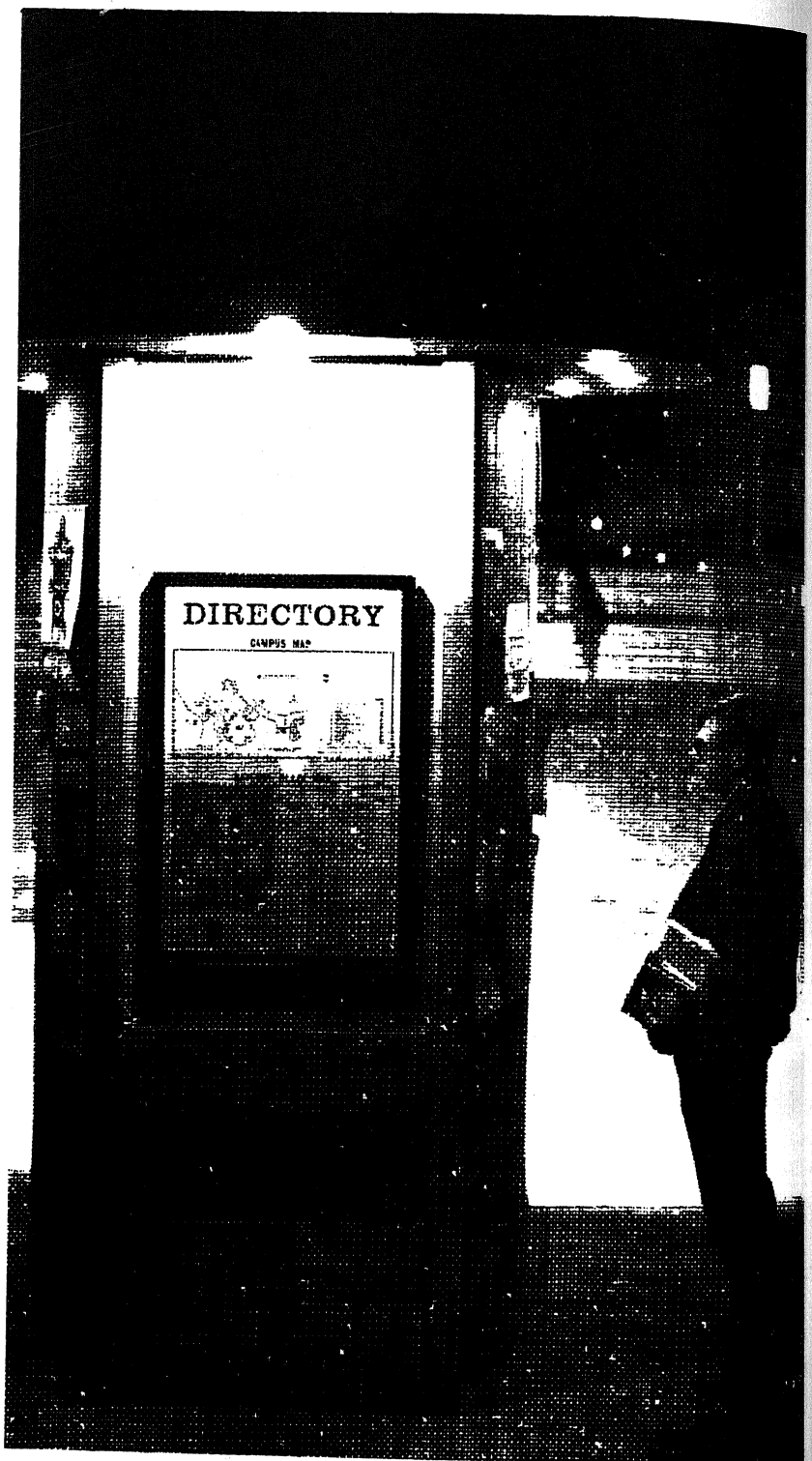
CONTINUING EDUCATION

From time to time the Graduate School of Administration will provide opportunities for persons working in government, education, and business for advanced study in a variety of forms including short courses, symposia, post-doctoral fellowships, and sabbaticals. Some of these special programs are currently being offered by UCI Extension. (See Extension Bulletin.)

RESEARCH OPPORTUNITIES AND FACILITIES

Degree candidates have the opportunity of participating not only in research projects conducted by individual faculty members, but also in the activities of organized research units such as the Public Policy Research Organization. Access to the UCI Computer Facility, to the Self-Instructional Laboratory, and to experimental small group and simulation laboratories, will add to the reservoir of "research technologies" available to the future manager, administrator, teacher, or researcher.





EDUCATION OF TEACHERS

KENNETH P. BAILEY
Director of Teacher Training

Education as a discipline involves not only a systematic study of the theories, problems, and methods of teaching as preparation for classroom teachers, but also seeks to analyze education both as a process and as a cultural phenomenon. The degree to which the lives of a people are shaped and directed by their schools lends urgency to research into what is good, better, and best in educational policies and practice. The relationship between school and society, the learning process, curriculum construction, purposes and philosophy of education, are all legitimate concerns of a university which would clarify the role of the teacher in the school and the role of the school in society.

The faculty assumes as one of its responsibilities the education of teachers for elementary and secondary schools and junior colleges. Those responsibilities are to be met through curricula combining subject matter concentration in teaching fields, studies seeking to relate theory and practice, and supervised teaching and internships designed to test education theory in teaching, and to develop professional attitudes.

Students planning to become teachers can qualify at Irvine for the Standard Teaching Credentials with a specialization in elementary teaching, with a specialization in secondary teaching, or for junior college teaching. The Standard Elementary Credential authorizes persons to teach in kindergarten and grades one through nine; the Standard Secondary Credential authorizes the teaching of subjects in the teaching major and teaching minor (not required) in grades seven through twelve, which actually means all grades of any senior high school, junior high school, or the seventh and eighth grades of an elementary school.

Requirements for either the Elementary or Secondary Credential are such that the Irvine student who completes the 3-3-6 college requirements will have completed most of the undergraduate courses essential to the credential. Thus it is not necessary for the undergraduate student to consult with the Office of Teacher Education until sometime in his upper division experience, although such consultation is encouraged. The breadth of the Irvine graduation requirements simplify the credential requirements so that the only deviation from a regular B.A. degree might be the inclusion of a fourth course in English, including one course in advanced composition, and two or three education courses during the junior or senior years. The student working for the Elementary Credential will also need to complete one course in the theory of the structure, arithmetic, and algebra of the real number system (Math 4A). Students for either credential must not overlook the English requirement: four quarter courses including a course in composition in advance of freshman composition.

In addition to the regular credential program there is the possibility of enrolling in the Teacher Intern program. We suggest that students who are aiming at the Intern program consult with the Office of Teacher Education.

A fifth year of college work taken in the Graduate Division is required for any teaching credential. For the Secondary Credential, during their graduate year the student must complete at least three courses either in his major or in his minor. While a minor is not required, it is advisable to develop one. The subject matter

courses required in the graduate year must be graduate courses or courses accepted as graduate courses. For the Elementary Credential no specific subject matter courses are required in the graduate year.

To qualify for a credential the student is required to complete specified courses in Education and twelve units of Supervised Teaching. The sequence of education courses is flexible, but attention needs to be given to prerequisites.

Major requirement: All candidates must complete a major which consists of at least nine upper division and/or graduate courses. The major preferably should be one which is commonly taught at the school level for which the credential will be secured.

Minor requirement: Candidates with an academic major that is commonly taught in the public schools at the level for which the credential is to be secured need not complete a minor; however, Secondary Credential candidates in history, social sciences, and biological sciences may have difficulty securing a teaching position if they do not have a minor field.

If the major is academic, but not commonly taught at the public school level for which the credential will be secured, two minors that are commonly taught will be required. Each minor, for credential purposes, must consist of nine courses of lower and upper division. Approved interdepartmental minors are acceptable.

All faculty members will participate in teacher education, apprising themselves of the needs of elementary and secondary schools, planning curricula, and lending support to young men and women interested in teaching careers. Future teachers will be part of the entire intellectual climate of UCI, studying with colleagues of like academic bent, who may or may not be planning to become teachers.

The University is fortunate to be surrounded by excellent schools that can provide an array of opportunities for students to observe and participate in educational affairs, and gifted personnel who will work side by side with University students. Master teachers in these schools will provide a clinical orientation through their supervision of student teachers and interns and participation in accompanying lectures, seminars, field trips, and workshops.

There are certain course requirements for the Standard Secondary Certificate. The student must take either History and Philosophy of Education (Ed. 170), or Sociological Foundations of Education (Ed. 172). He must take Psychological Foundations of Education (Ed. 171), Secondary Curriculum and Organization (Ed. 101), and Methods of Teaching in the Secondary School (Ed. 102).

The Standard Elementary Credential has five specific professional requirements plus supervised teaching. The student may choose either History and Philosophy of Education, or Sociological Foundations of Education. He is required to take Psychological Foundations of Education. He must complete both parts of Elementary School Curriculum, Organization and Methods (Ed. 104A-B), and 105A Reading.

These unrelated items may answer a number of questions. The students will find that the normal 3-3-6 requirement of the various colleges will fulfill the general education requirements of the Standard Secondary Credential and normally those of the Standard Elementary Credential. A student may not use more than two courses from the University Extension to fulfill the credential requirement, if it is to be obtained through the University. The State Department of Education will not accept pass-fail grades in professional Education courses. For the Secondary Credential the three graduate courses in subject matter may be in either the major or minor, but not mixed. Both the Elementary and Secondary Credentials are graduate programs and require admission to the Graduate Division with the same grade point

average as required of other academic areas. Persons interested in interning must complete at least one course in student teaching before entering the program.

Courses in Education of Teachers

Ed. 101 Secondary School Curriculum and Organization (1)

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.

Ed. 102 Methods of Teaching in the Secondary School (1)

A laboratory course covering scope and sequence in instructional programs in general and in the student's major and minor in particular. Observing and participating in the secondary classroom are required. This course includes extensive study in educational media: films, film strips, overhead presentations, television, the computer, and other educational technology. This course is to be taken in the graduate year immediately prior to supervised teaching.

Ed. 102A Methods of Teaching Foreign Languages in the Secondary Schools

Prerequisite: Linguistics 100 and senior standing as a Foreign Language major.

Ed. 103 Mathematics for the Elementary Credential (1)

Structure, arithmetic, and algebra of the real number system; elementary number theory and numeration.

Ed. 104A-B Elementary School Curriculum, Organization and Methods

104A: A laboratory course covering scope and sequence in elementary education, including current developments and methods in the mandated areas which most elementary teachers are required to teach: reading, language, literature, social science, mathematics, science, health, art, music, and physical education. Students are required to observe and participate a minimum of two hours per week in selected public elementary schools. This course includes audio-visual materials and techniques and other educational media. In the first quarter there will be detailed laboratory study of methods in developmental reading, language arts, and social science.

104B: A laboratory course giving an intensive treatment of methods and materials of instruction in public elementary schools; review of context of the mandated subjects; classroom organization and management; classroom control and evaluation. This course also includes educational media in terms of equipment, materials, and techniques. Students are required to observe and participate a minimum of two hours per week in selected public elementary schools. In the second quarter of this course there will be detailed laboratory study of arithmetic, science, and a modern foreign language.

Ed. 105A Curriculum and Methods in the Elementary School: Reading

Principles and methods of developing instructional programs in reading; participation in schools.

Ed. 105B Curriculum and Methods in the Elementary School: Foreign Language

The audio-lingual method of teaching foreign languages at the elementary level. Examination and development of materials; evaluation; articulation with secondary schools.

Ed. 170 History and Philosophy of Education

Either Ed. 170—History and Philosophy of Education, or Ed. 172—Sociological Foundations of Education, should normally be the first education course in which the student enrolls. Course covers the development of educational thought with special reference to philosophical analysis.

Ed. 171 Psychological Foundations of Education
Covers the learning process in school situations, the evaluation of learning, application of psychological principles to problems of learning and development. Major topics include learning, personality development, social interaction, and theories of instruction, educational measurement and evaluation, construction and interpretation of evaluation procedures.

Ed. 172 Sociological Foundation of Education
Influence of social structure in schools, school systems; American cultural values and their influence on education; particular emphasis is placed on problems of ethnic and cultural differences in schools of the United States; the school system as formal organization in American society.

Ed. 180 Special Topics: Curriculum and Methods
May be repeated for credit.

Ed. 181 The Principles of Curriculum Construction Covering Curriculum, K-12
This program will study 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.

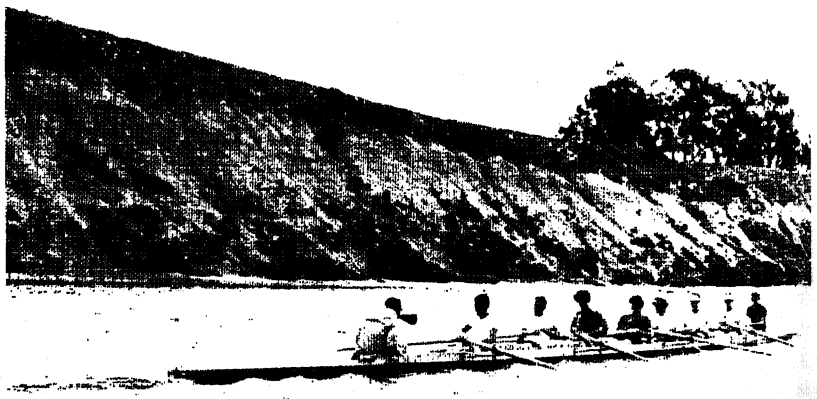
Ed. 182 Principles of Secondary Curriculum Construction
Ed. 183 Principles of Elementary Curriculum Construction
Ed. 199 Individual Study: History and Philosophy
May be repeated for credit.

Ed. 300A-B-C Supervised Teaching in the Elementary School
Must include 180 clock hours of actual teaching in a course in student teaching.

Ed. 310A-B-C Intern Teaching in the Elementary School
This program is on-the-job teaching but teaching contracts have to be secured before the student may enroll.

Ed. 320A-B-C Supervised Teaching in the Secondary School
Must include 120 clock hours of actual teaching in a course in student teaching.

Ed. 330A-B-C Intern Teaching in the Secondary School
This program is on-the-job teaching but teaching contracts have to be secured before the student may enroll.



UCI—CALIFORNIA COLLEGE OF MEDICINE

WARREN L. BOSTICK
Dean

UCI—California College of Medicine is accredited by the Council on Medical Education and Hospitals of the American Medical Association and by the Association of American Medical Colleges, and offers a four-year professional curriculum leading to the M.D. degree.

The California College of Medicine was established in 1914 with the merger of two California educational institutions. The College became an affiliate of the University of California in February, 1965, and an integral part of the University in October, 1965. On April 20, 1967, by action of The Regents of the University, the medical college became part of the UC Irvine campus.

Preliminary applications for the class matriculating in September, 1970, with all transcripts of record and other required documents, must be filed between May 1, 1969 and October 31, 1969, with the University of California, College of Medicine, Office of Admissions, Irvine, California 92664. Applications for admission may be obtained from that office.

Further details on admission requirements and procedures begin on page 164.

Official notification regarding such items as medical student registration, fees and financial aid, examinations, scholarship, advancement in course, leave of absence, withdrawal, dismissal, and other regulations are published in the 1969-70 *Announcement of the UCI—College of Medicine.*

Responsibility for obtaining this publication, familiarity with and adherence to the procedures outlined therein rests with the student.

The *Announcement* can be obtained from the University of California, College of Medicine, Medical Student Services Office, Irvine, California 92664.

Requirements for Graduation

Every candidate for the Doctor of Medicine degree must fulfill the following requirements:

1. He must have attained the age of twenty-one and be of good moral character.
2. He must have spent at least four academic years of study as a matriculated student, the last two of which must have been in residence at UCI—California College of Medicine.
3. He must have completed all the required courses of the college curriculum.
4. He must be free of indebtedness and other obligations to the University.
5. He must have been recommended for graduation by the Promotions Committee, the Faculty, and the Dean of the College.

Internships

The California Business and Professions Code provides that before a physician and surgeon's certificate may be issued to practice in the State of California, each applicant must show by evidence satisfactory to the California State Board of Medical Examiners that he has completed a one-year internship in a hospital approved by the Board.

Licensure

The entrance requirements and the curriculum of the College of Medicine meet the provisions of the Business and Professions Code of the State of California. All physicians practicing medicine in California must be licensed by the California Board of Medical Examiners. Physicians licensed to practice in other states or those certified by the National Board of Medical Examiners usually may obtain a license to practice in California under conditions outlined by the California Board of Medical Examiners. Information regarding reciprocity or other problems of licensure may be obtained from the Office of the Secretary, California Board of Medical Examiners, Room A547, 1021 'O' Street, Sacramento, California 95814.

The National Board of Medical Examiners was organized to establish a qualifying examination of such character that successful candidates might be admitted to the practice of medicine by the individual state boards of medical licensure without further examination. Information regarding this examination may be obtained from the National Board of Medical Examiners, 3930 Chestnut Street, Philadelphia, Pennsylvania 19104.

ADMISSION TO UCI—CALIFORNIA COLLEGE OF MEDICINE

All inquiries should be addressed to:
UCI—College of Medicine
Office of Admissions
Irvine, California 92664
(714) 833-5389

Each application for admission, whether for first year or advanced standing, must be filed with the Admissions Office of the College of Medicine.

The College gives equal consideration to applicants of all ethnic and racial backgrounds, religious preferences, and to men and women. All are encouraged to apply.

First-year students are admitted only in September of each year.

A student formerly enrolled in the College may be required, before readmission, to pass examinations in the subjects previously completed.

Candidates for admission to the first-year class in the College must meet in full the requirements specified below.

1. The candidate must have completed a four-year high school course, or its equivalent, acceptable for matriculation in the college of letters, arts, and sciences of an accredited university, college, or junior 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 baccalaureate credit in an accredited institution of higher learning. Candidates for admission may submit junior 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 essential in the areas of required subjects. The following minimum specified subjects of premedical work are offered as a guide to the candidate:

	Semester Units	Quarter Units
Chemistry (total)	16	24
General Chemistry		
Quantitative Analysis		
Organic Chemistry		
Physics	8	12
Biology (total)	12	18
General Zoology		
Vertebrate Embryology		

These courses serve as a practical foundation for work in the medical college. Additional work in the sciences does not necessarily improve the applicant's prospect of admission, but courses in mathematics (calculus, statistics), comparative anatomy of the vertebrates, and genetics are considered to provide a stronger premedical foundation. Duplication of medical curriculum subjects is not advised (i.e., anatomy, physiology, or bacteriology).

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.

The applicant should direct any question he may have regarding the acceptability of a course to the Office of Admissions.

3. The candidate must attain a satisfactory score in the Medical College Admissions 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 Admissions Test, The Psychological Corporation, 304 East 45th Street, New York, N.Y. 10017.
4. A personal interview with members of an Interview Committee is required of the candidate after preliminary consideration of his application for admission. Letters of recommendation from college professors are invited. Candidates for interview will be notified of the date. Those candidates who live a considerable distance from the Irvine campus may be interviewed by someone designated by the Director of Admissions. An interview does not guarantee admission.

Western Interstate Commission for Higher Education

UCI—California 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, Arizona, Hawaii, 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 his own state. State eligibility requirements vary, and the number of students accepted from each state depends on appropriations by the state legislature. For addresses of certifying officers, write to the Western Interstate Commission for Higher Education, University East Campus, Boulder, Colorado 80304.

Procedures for Admission

The College of Medicine uses a preliminary application procedure. This preliminary application must be submitted by October 31 of the year preceding that for which matriculation is desired. Candidates for admission should file with the Admissions Office of the College the following:

1. A completed preliminary application.
2. Two glossy, unmounted photographs, exactly 2" x 2", taken within sixty days preceding the date of the application.
3. The candidate is responsible for having the scores of the Medical College

Admissions Test sent to the Admissions Office of the College. *Do not* send any other documents with the preliminary application.

After the preliminary application has been evaluated, the applicant *may* be asked to file with the Admissions Office of the College, the following:

1. A completed Application for Admission, including the blue supplemental sheet and a Course List.
2. An evaluation fee of $10.00, which is not refundable.

The applicant will be responsible for having the following sent to the Admissions Office:

1. A copy of official transcript(s) of all college work. Transcripts must be sent by the school, *not* by the student. If the applicant is not expecting to receive a degree prior to matriculation, he must also have his high school send a transcript.
2. A report of a physical examination.
3. A report from his college's premedical committee, or from two college instructors, preferably in science subjects.

No application for admission will be accepted which does not clearly indicate that all the required subjects will be completed by the date of matriculation.

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, by action of the Admissions Committee and the Dean, granted to those who possess, in addition to scholarship, other attributes important in the physician. Ethnic background and religious and political convictions do not enter into the consideration of this Committee. Those students selected to enter the program must continue to demonstrate, throughout the course, their ability and worthiness to assume the responsibilities of the physician.

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, he must submit complete, official transcripts and a letter of honorable dismissal from that school.

Notice of Appointment

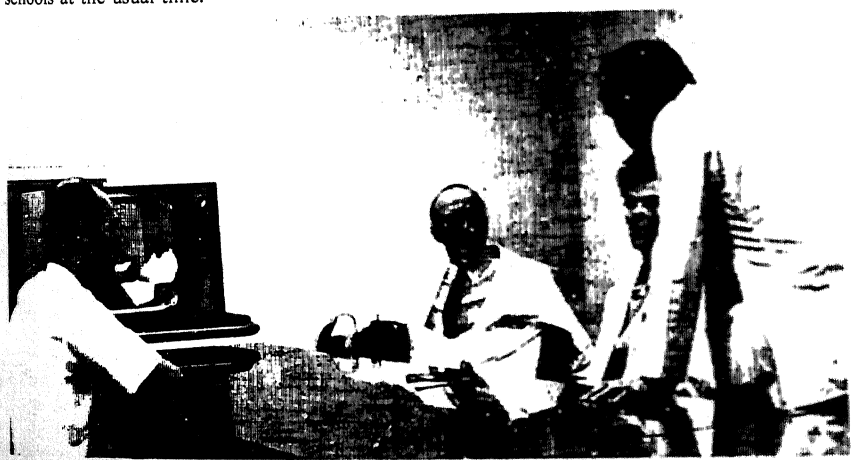
The Dean of the College will notify the candidate of his appointment as soon as his application has been acted upon by the Admissions Committee. Written acceptance of the appointment, accompanied by an acceptance fee of $50.00, must be sent to the College within two weeks after receipt of the notice of appointment. This fee will be applied against the University Registration Fee for the first quarter. Should an applicant accept admission, and decide to withdraw prior to March 1 of the year of anticipated admission, this fee will be refunded; after that date no refund shall be made. This is in keeping with the recommendations of the Association of American Medical Colleges.

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 he will enter the course of instruction offered by the medical school.*
2. When an offer is made to an applicant, he should have not less than two weeks in which to reply.
3. The student who receives an offer prior to February 15 may be required to file within two weeks a statement of intent, or a deposit, or both. The statement of intent should leave the student free to withdraw if he is accepted by another school he prefers; and the deposit, which should not exceed $100, should be refundable without question if the request for refund is made before March 1.
4. Offers made after February 15 may require a reply within two weeks, and also a deposit, not to exceed $100, which may be credited against tuition charges if the student matriculates in the school, and which may be forfeited if he does not.
5. Each medical school should prepare and distribute to applicants and college advisers a detailed schedule of its application and acceptance procedures, and should adhere to this schedule unless it is publicly amended.
6. No medical school should use any device which implies that acceptance of its offer creates a moral obligation to matriculate at that school. Every accepted applicant should know that he is free to deal with other schools and accept an offer from one of them even if he has paid a deposit to another school and must forfeit it. Every accepted applicant does retain under all circumstances an obligation to notify a school promptly if he decides not to accept its offer to him, and to withdraw at once if, after accepting an offer from a school, he receives and accepts an offer from another school he prefers.
7. Each school is free to make appropriate rules for dealing with accepted candidates who hold one or more places in other schools without adequate explanation. These rules should recognize the problems of the student who has multiple offers, and also of those applicants who have yet been accepted.

*Under special circumstances a school may make an offer more than one year before the expected matriculation date to encourage the educational development of the student, but all of such offers should state explicitly that the student is completely free to apply to other schools at the usual time.



Instructional and Research Services

Instructional and Research Services

AGRICULTURE

Students who wish to major in one of the agricultural sciences and who plan to transfer in advanced standing to the College of Agricultural Sciences, Berkeley, the College of Agriculture, Davis, the School of Agricultural Sciences, Riverside, the School of Forestry, Berkeley, or the School of Veterinary Medicine, Davis, may complete most of the requirements for the first two years of their undergraduate work at Irvine, on any other general campus of the University, or at one of California's junior colleges.

Majors in the agricultural sciences offered on the campuses listed above include: plant and animal sciences, agricultural economics, soils and plant nutrition, irrigation sciences, forestry, food science, dietetics, nutrition, genetics, biology, education and international agricultural development, range management, veterinary medicine, biochemistry, agricultural business management, horticultural science, agricultural chemistry, entomology, plant pathology, and various specialties in the field of family and consumer sciences.

Students should consult the General Catalogue of the appropriate campus for detailed requirements in their field of interest, since not all majors are offered on each campus and variations in requirements exist among specific majors.

THE COMPUTER FACILITY

ROBERT M. GORDON
Director of Computer Facilities

The Computer Facility provides computational and other information processing services for instructional and research purposes to members of the University community. The computer system is designed for easy access by faculty and students through use of remote on-line stations and appropriate programming languages. Computer Facility staff provide consulting service to users on difficult programming problems and offer short, non-credit courses on the available services.

EDUCATION ABROAD PROGRAM

The Education Abroad Program offers opportunities to undergraduate and graduate students of the University of California to study in universities overseas, and serves also as a source of information on all types of educational exchange experiences. It is administered for the University of California by the Santa Barbara campus. Professor Seymour Menton of the Department of Spanish and Portuguese is the Irvine Campus Coordinator.

In 1969-70 the University will continue the operation of its study centers in France (Bordeaux), Germany, Hong Kong, Israel, Italy, Japan, Lebanon, Mexico, Spain, Sweden, and the United Kingdom, and will open new study centers in Africa and in Paris, France. The centers range in size from ten to one hundred students.

Eligibility requirements are: Upper division standing in the University at the time of participation, two years of university-level work in the language of the country with a B average (or equivalent thereof), an overall B average, seriousness of purpose, and an indication of ability to adapt to a new environment. Transfer students are eligible if they meet the language requirement and have completed at least one language course in the University of California. (The language requirement

is not applicable to the centers in Africa, Hong Kong, Israel, Lebanon, and the United Kingdom.) Special arrangements can be made for the participation of graduate students.

The participants will 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. The programs in Mexico and in Paris, France, are for seniors and graduate students planning to become teachers of Spanish and French, and are held in two sessions during the fall and winter quarters or the spring and summer.

All participants will be concurrently enrolled as students at the University of California and in the host university and will receive full credit for courses satisfactorily completed. See Education Abroad Program in the bulletin of the University of California, Santa Barbara, for a partial listing of the courses available.

The Regents endeavor to bring this year abroad within the reach of all students, regardless of their financial resources. Information concerning scholarships and loans for study abroad may be obtained from the Financial Aids Office on the Irvine campus.

Applications for 1970-71 should be in by January 10, 1970, with the exception of applications for Paris, France, Mexico, and the United Kingdom, which are due by November 15, 1969.

For further information write to the Education Abroad Program, 2108 South Hall, University of California, Santa Barbara, or contact the Department of Spanish and Portuguese, 260 Humanities Building, University of California, Irvine.

INTERCOLLEGIATE ATHLETICS

RAYMOND H. THORNTON
Director of Athletics

Athletic facilities have been expanded this year to include an all-weather track and baseball field. UCI has representative teams in basketball, crew, golf, gymnastics, sailing, swimming, tennis, and water polo, with baseball being the newest addition to the program. Track, cross country, and wrestling will be added in 1970-71.

Last year the basketball team participated in the Western Collegiate Championships for the second year in a row and has an over-all record of 69 wins and 39 losses in four seasons. Water polo was rated the number three team in the nation last year and has a four-year record of 71 wins and 16 losses. Swimmers in 1969 returned from Springfield, Massachusetts, where they won the NCAA College Division Championship, UCI's first national title.

The athletic program will be expanded as rapidly as facilities and finances permit. For additional information regarding present or future sports teams, inquiries may be made to the Director of Athletics, Crawford Hall.

JOURNALISM

Students interested in careers in journalism should major in one of the regular disciplines and use electives to complete a suitable interdisciplinary program, including work in such fields as writing, literature, the social science of communication, information and computer science, and administration. For further information students should consult the Chairman of the Department of English and Comparative Literature or the Chairman of Academic Advising in the School of Social Sciences.

THE UNIVERSITY LIBRARY

JOHN E. SMITH
University Librarian

The University Library is a rapidly growing and increasingly important resource for teaching and research with a collection of more than 300,000 volumes and a current subscription list of more than 6,000 journals and serials. The collection is housed in a functional, open-stack library designed to bring students and books together. With the exception of materials housed in the Department of Special Collections and reserve books in heavy demand, all periodicals and books are on open shelves and are easily accessible to all readers. Reference books, numbering about 10,000 volumes, including bibliographies, encyclopedias, handbooks, dictionaries, and indexes, are arranged in an open-shelf collection. There are librarians in the department to assist in finding information and in using the reference tools. Informal instruction in the use of the collections is available at any of the public service desks.

At the opening of the fall quarter the building will be almost doubled by the completion of the second unit. Besides the additions to the book stacks, great expansion in reader capacity has been planned: Individual study carrels will continue to be a feature of the seating arrangement, and there will also be increased facilities for group study. All aspects of the building are designed to encourage independent study and research and to stimulate general exploration and browsing among the collections. When the University is in session the Library is open 97 hours per week.

Special facilities and staff are provided for the Government Publications Department, which contains a collection of over 75,000 documents issued by the federal, state, and local governments as well as those of international organizations. The Library is a depository for U.S. and California publications. The Department of Special Collections houses the Library's collection of rare books, local history material, and the official university archives.

The library copying service, supplemented by self-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 facilities in the new unit of the building.

The medical collection of about 40,000 volumes will be available in Medical Surge Building II when it is moved from Los Angeles in the fall.

Two branch libraries, designed to serve the physical and biological sciences with collections of about 10,000 volumes each, are located in the Physical Sciences Building and in the Science Lecture Hall. More than 600 current periodical titles are held in each Library. Hours of service are the same as the Main Library, and copying service is furnished in both branches.

Bus service to UCLA is offered, Monday through Saturday, for students who

need material not held in the UCI Library. Interlibrary loan service is available to the faculty and graduate students.

A lively program directed toward the computerization of library operations is being developed by the Library Systems Analysis Office.

For a more comprehensive description of library services and procedures consult the *Library Handbook*, copies of which may be obtained at the Circulation Desk.

PUBLIC POLICY RESEARCH ORGANIZATION

ALEXANDER M. MOOD
Director

The Public Policy Research Organization was established in 1966 by the Regents of the University to conduct policy-oriented research as a University institution with headquarters on the Irvine campus. It will sponsor research at all the University campuses to complement the work of its own research staff.

The basic objectives of "PPRO" are to initiate and conduct interdisciplinary research programs relevant to current and future public problems, to carry out such research projects for government agencies as will enhance its basic research program, and to participate in the development of training programs in the field of policy research and analysis. Its fundamental research programs will be generally related to focusing diffuse and fragmented authority on specific problems that cut across the authorities of public agencies, and will emphasize application of systems analysis and organization theory.

Current projects at PPRO are exploring: (1) school organization and particularly the use of students as teachers, (2) influences of fellow students on a student's learning, (3) methods of raising the aspiration level of Mexican-American students, (4) involvement of citizens in policy-making for local schools, (5) management practices in institutions of higher education, (6) successful ways of dealing with student unrest, (7) the making of science policy at the State level of government, (8) development of the San Joaquin Valley as a result of new water and transportation resources, (9) movement of minorities into the suburbs and examination of local policies which will prevent formation of new ghettos there, (10) growth of the community around the Irvine campus, (11) long range planning of community health care, (12) evaluation of driver education from points of view of traffic flow and highway safety, (13) joint use of forests for both commerce and recreation.

Graduate assistantships will be available for qualified students, in any school or department of UCI, who desire experience in policy research and analysis.

SUMMER PROGRAMS

An eight-week Summer Session will be held on the Irvine Campus from June 22 to August 14, 1970. 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 21 years of age. Information regarding Summer Session on the Irvine Campus may be obtained from the Summer Session Office in Crawford Hall, telephone (714) 833-5493. Catalogues and application forms will become available in February. Summer Sessions are also offered on the Los Angeles, Santa Barbara, Davis, and Riverside campuses.

Undergraduate students in good standing, wishing to attend a summer quarter, may apply to the Berkeley or Los Angeles campus as an Intercampus Visitor. Visitor privileges are limited to students intending to return to Irvine in the next regular quarter to complete degree requirements on this campus. All others should file a regular Intercampus Transfer Application. Both applications are available from the Office of the Registrar.

New students seeking admission to a summer quarter must file a regular undergraduate application and meet the regular admission requirements.

UNIVERSITY EXTENSION

RICHARD N. BAISDEN, *Director*
PAUL D. ARTHUR, *Program Coordinator*
ALICE L. ANDERSON, *Program Coordinator*
GLENN L. ANDERSON, *Publications Manager*

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 on the UCI campus, at Buena Park High School, and at other locations. For detailed information, write or telephone the Extension Office of UCI in Room 1325, Crawford Hall; telephone (714) 833-5414.

OFFICE OF RELATIONS WITH SCHOOLS

JAMES E. DUNNING
Assistant Director

The University Office of Relations with Schools serves in liaison between the University of California and the other educational systems of the state. On the one hand, it is the spokesman for the University insofar as its educational policies affect the high schools and junior colleges from whence its students come. On the other, it interprets to the University current developments on other educational levels whose impact is felt through entering students. Schools or organizations seeking other educational services are welcome to make arrangements through this office. The staff is also available as a resource to schools and education-oriented groups.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JIM HEYNE
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THURSDAY. MAY 15 - 8:30

STUDENT AFFAIRS

JOHN C. HOY, *Vice Chancellor—Student Affairs*
ROBERT S. LAWRENCE, *Dean of Students*
JOHN W. BROWN, *Registrar and Admissions Officer*
MRS. BETTE ABS, *Coordinator of Financial Aids and Placement*
ROBERT HAYDEN, *Coordinator of Housing and Food Service*
GARY ADAMS, *Coordinator of Recreation Sports*
MISS JAN JENKINS, *Coordinator of Special Services*
MRS. CYNTHIA JOHNSON, *Coordinator of Student Activities*
JACK F. LITTLE, *Assistant to the Vice Chancellor—Student Affairs, for Co-Curricular Learning*
TIMOTHY KNOWLES, *Director of Educational Opportunities Program*
GERALD B. SINYKIN, *M.D., Director of Student Health Services*
JAMES E. DUNNING, *Assistant Director, Relations with Schools*

OFFICE OF VICE CHANCELLOR—STUDENT AFFAIRS

The Office of Vice Chancellor—Student Affairs coordinates all student services provided by the University. These include admissions and registration, academic advising, financial aids and placements, housing and food services, recreation and sports, special services, student activities, student health services, educational opportunity program, and innovations in student life.

It is a function of the Office of the Vice Chancellor—Student Affairs to facilitate professor-student relationships, and to encourage the student to pursue productively both academic and extracurricular experiences.

In essence, the function of the Student Affairs Office is to assist students in planning their individual and collective activities. The early years at Irvine offer unusual opportunities to establish organizations, traditions, and a responsible student government.

OFFICE OF THE DEAN OF STUDENTS

The Office of the Dean of Students coordinates services available to students and provides leadership and guidance in the co-curricular program. Services are provided in the following areas:

Academic Advising

Each student is assigned an advisor and an academic dean. Students who express a preference are assigned an advisor from a particular school, and his dean is the dean of that school. Once assigned to an advisor and to a dean, the student remains with that advisor and in that school unless he requests reassignment (for example, if he changes his field of interest). The student is encouraged to consult his advisor—or any member of the faculty. He must see his advisor prior to registration. However, the advisor does not dictate. The student, not the advisor, is responsible for meeting requirements and remaining in good academic standing.

The dean of the school to which a student is assigned has authority over the student's academic program. A student wishing to drop or add a course, seeking a waiver of a graduation requirement, or having other questions relating to his aca-

Student Affairs

demic progress, should see the dean of the school to which he has been assigned.

Freshmen and sophomores intending to enter the School of Engineering will be assigned advisors from the faculty of that school, but until admitted to it they will remain, in respect to academic matters, subject to the jurisdiction of one of the deans of the schools in which they are taking lower division courses.

Advisors meet with their advisees individually during Orientation Week in the fall, and these meetings are repeated periodically during the academic year. A student may remain with the same advisor throughout his stay at Irvine. Changes are possible when:

1. The student or his advisor believe a change would be desirable.
2. The student transfers to another school or department (unless he prefers to remain with his original advisor).
3. The advisor is unavailable for an extended period of time.

Any changes of advisor will be arranged by the student's school dean. If the student wishes to change his school or department area of concentration, he must obtain a petition from the Registrar. Upon filing the petition with the Registrar, the required changes in his records will be made.

Students are encouraged to consult their advisor prior to each enrollment period, although they are not obligated to follow their advisor's recommendations. It is the student's responsibility to satisfy the academic regulations of this campus. The long-range objective of the advising system is to enable the student to assume a maximum amount of responsibility for his own academic program.

Financial Aids and Placement

Scholarships. Undergraduate scholarships are available for both entering and continuing students from funds donated by private sources and by The Regents. Awards are made on a competitive basis with consideration given to the applicant's scholastic achievement, financial need, and character. In most instances, the award will not meet the annual expenses of a full-time student. It is expected that each applicant will be able to draw upon other financial sources, such as savings, assistance from parents, loans, and part-time employment.

Application forms and a descriptive circular may be obtained from the Office of Financial Aids and Placements, 1441 Library Building, University of California, Irvine, California 92664. Applications must be filed between November 1 and January 15, prior to the academic year for which the awards are to be made. For information concerning fellowships for graduate students, please refer to the Graduate Section of the Catalogue.

Regents' Scholarships. A limited number of four-year and two-year scholarships are made available to outstanding entering freshmen and to continuing and transfer students beginning their junior year in the University. Recipients will be chosen for demonstrated academic excellence and exceptional promise. Each will receive $100 honorarium at the beginning of their initial year of appointment. Additional stipends to cover the full cost of required fees, board and room, books and supplies, and incidental expenses will be awarded, the amount to be based on individual financial need. Application requirements are the same as for other scholarships.

Loans. The Regents, various organizations, and philanthropic individuals have contributed funds toward the creation of several student loan funds. The money for this purpose is administered by the University in accordance with conditions stipulated by the donors and by the administrative regulations of The Regents. Loans from these funds are generally of a short-term nature and ordinarily do not bear interest. In addition, long-term student loans are available to qualified undergraduate and graduate students. Regularly enrolled students in good standing or applicants for admission to regular status are eligible to apply. Applicants must demonstrate clear evidence of financial need by submission of the Parents' Confidential Statement of the College Scholarship Service. (This form may be obtained from the high school or junior college counselor.) Loan applications should be submitted by July 15 for funds to be available for the fall and winter quarters and by December 15 for funds to be available for the spring quarter.

Part-Time Student Employment. Students wishing assistance in obtaining part-time employment during the academic year and summer vacation period may register with the Office of Financial Aids and Placements any time during the year. Both on- and off-campus jobs are available on an hourly basis in the fields of typing, clerical help, sales, care of children, housework, manual labor, tutoring, and some specialized kinds of work for qualified students. A listing is also available for board and room in exchange for work in private homes.

Federal Educational Opportunity Grants. The basic purpose of this program is to assist students whose exceptional financial need would prevent their attending college. Grants range from $200 to $1000 per year, but in every case may not exceed one-half of a student's financial need and must be part of a financial aids package, which may consist of a loan, a state scholarship, or other approved scholarship. Grants are renewable if financial need continues and good standing is maintained.

Federal College Work-Study Program. The College Work-Study Program is sponsored by the Federal government and is designed to assist students from low income families who cannot meet their college expenses. Students who qualify for this assistance are provided with employment during the school year and vacation periods.

Career Placement. Candidates for a degree are invited to register with the Office of Financial Aids and Placements as early as possible during their last year in school. They will be assisted in obtaining information concerning employment opportunities; and arrangements will be made for them to meet with employers from business, industry, and government for on- and off-campus interviews.

Educational Placement. Prospective teachers who are interested in positions in public or private schools, colleges or universities, including administrative, supervisory, and research positions, are encouraged to register with the Office of Financial Aids and Placements. A personal confidential file will be assembled including background, training, and professional experience of applicants, in order to match candidates with available positions. Interviews will be arranged and qualified candidates will be recommended to employers.

The University of California Grant-in-Aid program has been established to provide grants-in-aid for students with exceptional financial need.

Housing and Food Services

The Central Housing and Food Services Office is located on the first floor of the Library Building. The Housing Cashier and Residence Hall Manager are located in offices in Mesa Commons. Services include all on-campus housing and food operations as well as supervision of Student Stores, Student Centers, Vending, and accommodations for conference and special events.

The University maintains on-campus residences for 800 undergraduate single students in Mesa Court. Each residence accommodates 50 or 60 students and a resident assistant, providing an opportunity for small-group living, self-government,

and leadership experience. Each residence is divided into suites of four double rooms, with living room and bath; and each residence also contains a lounge, recreation room, and library. Rooms are furnished except for bedspreads, blankets, and study lamps. Mesa Court Commons provides food service for all students in Mesa Court. The residences close during the Christmas and spring recesses, although special arrangements may be made for housing during these periods.

The University will have 350 one-, two-, and three-bedroom apartments on campus. Most of these apartments are furnished and all have carpeting, draperies, stoves, and refrigerators. The apartments are rented to married students, single graduates, and some faculty and staff. Approximately 100 of the apartments will be used this year to house returning undergraduate students.

Off-campus room and apartment listings are available to students who desire to call in person at the Housing Office. Since listings change from day to day, arrangements cannot be made by mail. The University is not prepared to inspect accommodations; transactions must be made individually and directly with landlords. A clear understanding of occupancy terms and conditions, preferably in writing, is recommended. Students who live in campus residences and apartments must have a signed housing contract and deposit on file with the Housing Office.

Recreation Sports

The Recreation Sports Program provides a variety of physical activities for officially enrolled UCI students. The major activities include men's intramural sports, women's intramural sports, coed intramurals, physical recreation, and sports clubs. The Recreation Sports Director is responsible for all recreational sports activities which utilize the physical education department's facilities and equipment. The *Recreation Sports Handbook* is available to every new student on enrollment. Detailed information can be obtained in the Recreation Sports Office, Room 1114, Crawford Hall.

Special Services

The Office of Special Services administers the various Federal, G-I Bill, and State Veterans' educational assistance programs; maintains liaison between the individual male students and their Selective Service System boards; acts in an advisory capacity to foreign students; and assists the physically handicapped with registration and enrollment procedures and other matters of need. Students with particular problems in these and related areas are urged to contact this office, Room 1433 Library Administration Building.

Central Campus Calendar

The Central Campus Calendar is the clearing house for all events that take place on this campus. This office provides service and centralized information to planners of scheduled events. "CCC" is located in Room 1433, Library Administration Building.

Student Activities

The Student Activities Office, located on the first floor of the Gateway Commons, is the coordinating center for students' organizations and activities. The Activities Office staff acts as advisors to student government, as well as to students who are interested in existing campus programs or in initiating new projects.

The University encourages participation in those activities which interest the student in the belief that such participation will supplement the educational experiences gained in the classroom. There is a variety of student clubs devoted to politics, special interests, service, and social activities. Students interested in new dimensions of campus life are encouraged to seek assistance in the Activities Office.

EDUCATIONAL OPPORTUNITIES PROGRAM

The difficulties which a person from a minority and/or low income background encounters in seeking a college education may range from inadequate public school experiences to a lack of funds. The Educational Opportunities Program (EOP) is designed to assist students in overcoming these and other difficulties. EOP assistance is available to entering freshmen, transfers from junior colleges, intercampus transfers, and graduate students. An EOP applicant need not be currently enrolled in any school.

Several kinds of services are offered by the EOP office. These include: assistance with applications; recommendations for admission of students who would not ordinarily qualify, but who show promise and ability to succeed; arrangements for financial assistance, on the basis of need, for students who are accepted in the program (including EOP grants, part-time jobs, or loans); counseling, advising, and group or individual tutoring in academic subjects, techniques of studying, and taking tests. It should be noted that freshmen are discouraged from taking on outside work.

Prospective EOP students must complete the regular admissions procedure. Applications may be obtained from the EOP office or the Office of Admissions. In addition to submitting an application for admission and requesting that transcripts of records from all prior schools be sent to UC Irvine, the EOP applicant must: (1) write a short autobiographical essay, focusing on who he is and what he thinks of the world; (2) have at least three people write recommendations (these may be teachers, counselors, persons in the community, or employers); (3) arrange for a personal interview with the EOP office. The personal interview is given heavy emphasis in the evaluation process.

Inquiries regarding the EOP program should be directed to:

Timothy Knowles, Director
Educational Opportunities Program
University of California, Irvine
Irvine, California 92664
(714) 833-5410 or 833-5908

STUDENT HEALTH SERVICES

Among the services available to all regularly enrolled students on the UCI campus is a Health Service, under the direction of a Physician Director. The Student Health Service facilities include an outpatient clinic and dispensary, staffed by physicians and nurses, and supported by x-ray and clinical laboratory. General medical clinics are held 8 a.m. to 4 p.m. every day during the week. Specialty clinics are held at various regular intervals, by appointment. An inpatient infirmary provides care for students who need bed care.

In addition to the above facilities, an insurance program provides for most emergency care, surgery, and hospitalization when such care is required and not available at the Student Health Service. Each enrolled student at UCI will have a basic health and accident insurance plan in force as well as a major medical plan.

Clinical counseling and help for emotional problems is available through the

Mental Health division of the Student Health Service. Psychiatrists and psychologists provide a full spectrum of services to students.

The Student Health Service encourages preventative 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.

INNOVATION IN STUDENT LIFE

In keeping with the experimental and innovative character of the Irvine campus, the Office of Innovation in Student Life has been created to coordinate students, faculty, and interested members of the community toward the goals of:

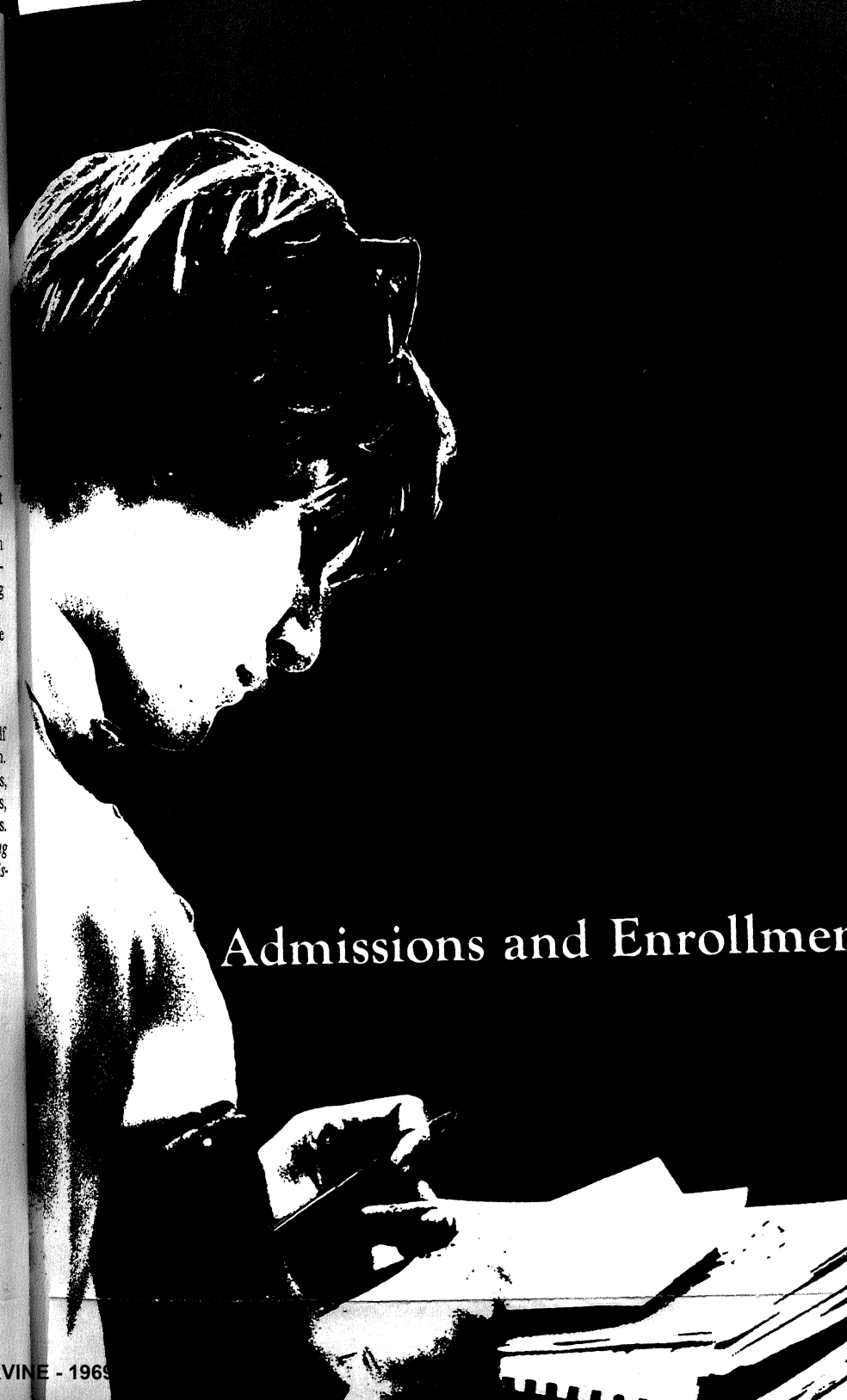
1. Stimulating and supporting a wide range of on-campus and off-campus activities designed to enhance the education and communication processes and, more generally, to "humanize" the university community.
2. Opening to scrutiny, inquiry, and change those aspects of university community life that appear to be dehumanizing and stultifying in their impact upon the individual.

ISL, a part of the Office of Student Affairs, conducts open "town meetings" in which participants discuss suggestions for the improvement of the university community. These meetings also serve as sensitivity or encounter sessions and a "staging area" for remedial action as needed.

The Office of Innovation in Student Life welcomes inquiries from prospective students and members of the university community.

STUDENT CONDUCT AND DISCIPLINE

A student enrolling in the University assumes an obligation to conduct himself in a manner compatible with the University's function as an educational institution. Rules concerning student conduct, student organizations, use of University facilities, and related matters are set forth in both University policies and campus regulations, copies of which are available upon request at the Office of the Dean of Students. Particular attention is called to the booklet *University of California Policies Relating to Students and Student Organizations, Use of University Facilities, and Non-Discrimination* and to the Standard of Conduct set forth therein.



Admissions and Enrollment

UNDERGRADUATE ADMISSIONS

Undergraduate admission requirements are uniform on all campuses of the University. Admission to the University entitles the student to attend the campus of his choice if facilities are available. Applications will be processed and acted upon in only one Office of Admissions. Duplicate applications should not be filed. Detailed information regarding procedures on change of campus preference after an application has been filed is included in the Undergraduate Admissions Circular.

Undergraduate students are classified as *Regular, Limited, Special, or Accelerated High School* students. *Regular* students are degree candidates enrolled in the established curriculum of a school. *Regular* students are expected to carry a minimum of three courses each quarter. Students in *Limited* status are those with or without a Bachelor's degree who have completed a substantial amount of college work and who wish to undertake certain undergraduate courses in the University toward a definite and limited objective. Students in *Special* status are those over 21, who have not had the opportunity to complete a high school program or who have not completed a substantial amount of college work but who by reason of special attainments may be prepared to undertake certain undergraduate courses in the University. No *Limited* or *Special* student may be a degree candidate. (See section on the admission of *Limited* and *Special* students.) *Accelerated High School* students are high school seniors recommended by their high schools to enroll in a limited University course concurrent with their final year of high school.

Application

Application packets, including all the necessary forms and instructions,* are available from the Office of Admissions. The filing periods are as follows:

Fall Quarter..... October 1—March 1
Winter Quarter..... May 1—November 1
Spring Quarter..... August 1—February 1

Students are encouraged to apply early in the filing period. Individual campus and/or school enrollment limits may dictate a briefer filing period.

Application Fee

A nonrefundable fee of $10.00 must accompany each application. Checks or money orders should be made payable to the Regents of the University of California.

Transcripts of Record

Each applicant is responsible for requesting the graduating high school and each college attended to send official transcripts of record directly to the Office of Admissions. Those applying as entering freshmen should ask the high school to submit preliminary transcripts showing their complete record through the sixth semester and listing courses in progress. In every case, a final transcript including a statement of graduation will be necessary. Applicants for advanced standing should submit preliminary transcripts of all college or university work attempted to date, in addition to the high school record. All preliminary transcripts should include a statement of the work in progress. Final transcripts should show evidence of good standing or honorable dismissal.

*NOTE: The twenty days allowed for filing the application is not valid beyond the final date of the filing period.

Notice of Admission or Deferral

The length of time required for evaluation of an application and its accompanying transcripts of record varies. Frequently, eligibility cannot be determined until the final term's work is completed. In such cases, the applicant may expect to receive a preliminary statement indicating the status of his application. The University participates in the Early Decision program wherein freshmen applicants for the fall quarter whose eligibility can be determined early will receive Notice of Admission beginning January 15. Such students have until the Candidates Reply Date to return their Statement of Intention to Register (SIR). Fall applicants admitted after the Candidates Reply Date and applicants for admission to the winter and spring quarters have three weeks after receiving the Notice of Admission in which to return the SIR. The $50.00 Advance Deposit on the Registration Fee is non-refundable but will be applied to the full Registration Fee when the student registers. The Notice of Deferral is accompanied by the Statement of Deficiencies which lists the reasons for the deferral.

Reapplication

An applicant who is not admitted, or who does not enroll for the quarter to which he is admitted, must reapply if he seeks admission to a subsequent quarter. Transcripts of records on file will be retained for six quarters.

ADMISSION TO FRESHMAN STANDING

In addition to the high school subjects required for admission to the University, certain preparatory subjects are recommended to give the student an adequate background for his chosen field of study. Details of these recommendations will be found in the bulletin, *Prerequisites and Recommended Subjects*, which is customarily in the hands of high school and junior college counselors. A copy may be obtained from the Office of Admissions, or from the University Dean of Educational Relations, University Hall, University of California, Berkeley, California 94720. Applicants not eligible for admission to the University are advised to attend one of the California junior colleges to take courses applicable to the requirements of the school in which they wish to enroll.

Requirements for California Residents

The freshman applicant must: (1) graduate from a California high school which has an acceptable course list on file with the Director of Admissions of the University; (2) complete satisfactorily the "a to f" sequence of subject requirements, plus elective units to total 15 entrance units (see below); (3) earn a grade point average of at least 3.0 (B) on the courses required to satisfy the "a to f" sequence; (4) submit the following test scores from the College Entrance Examination Board;*

a. Scholastic Aptitude Test—Verbal and Mathematics
b. Achievement Tests—English, Social Science/Foreign Languages, and Science/Math.

*The 1969-70 CEEB Scholastic Aptitude and Achievement tests will be given on the following dates: Nov. 1, Dec. 6, 1969; Jan. 10, Mar. 7, May 2, July 11, 1970. Arrangements to take the tests should be made with Educational Testing Service, P.O. Box 1025, Berkeley, California 94710; or P.O. Box 592, Princeton, N.J. 08540.

Subject Requirements (The "a to f" sequence.)

a. History, 1 unit—This must consist of 1 unit of United States History, or ½ unit of United States History and ½ unit of American Government.
b. English, 3 units—These must consist of three units of English composition, literature, and oral expression.
c. Mathematics, 2 units—These must consist of two units of subjects such as elementary algebra, geometry, trigonometry, calculus, elementary functions, matrix algebra, probability, statistics, or courses combining these topics. Arithmetic and such non-academic subjects as shop mathematics and business mathematics are excluded.
d. Laboratory Science, 1 unit.
e. Foreign Language, 2 units—These must be in one language. Any foreign language with a written literature is acceptable.
f. Advanced Course, 1 (or 2) unit(s)—This must be chosen from the following: Mathematics, a total of 1 unit of second-year algebra, solid geometry, trigonometry, or other certified advanced courses; Foreign Language, either 1 additional unit in the same foreign language offered under "e" or 2 units of another foreign language; Science, 1 unit of either chemistry or physics in addition to the science offered under "d".

Electives

Elective units to complete the minimum of 15 standard entrance units are also required. Additional information regarding the admission requirements will be found in the Undergraduate Admissions Circular, available from the Office of Admissions.

Admission by Examination

The freshman applicant who is not eligible on the basis of his high school record and who has completed no college or university work may qualify for admission by examination. Acceptable scores of the tests given by the College Entrance Examination Board, taken after the completion of the first half of the eleventh grade, may qualify a candidate for admission. See the Undergraduate Admissions Circular for additional details.

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 to f" sequence of subject requirements (see above); (3) earn a grade point average of at least 3.4 (B plus) on the courses used to meet the subject requirements; (4) submit the following test scores from the College Entrance Examination Board:

a. Scholastic Aptitude Test—Verbal and Mathematics
b. Achievement Tests—English, Social Science/Foreign Language, Science/Mathematics.

Admission by Examination—Non-Residents

The non-California resident who is not eligible on the basis of the high school record and who has completed no college or university work may qualify for admission by examination. Scores of the tests given by the College Entrance Examination Board, taken after the completion of the first half of the eleventh grade, may qualify a candidate for admission. See the Undergraduate Admissions Circular for details.

ADMISSION TO ADVANCED STANDING

Requirements for California Residents

The advanced standing applicant who would have been eligible for freshman admission is eligible for admission to advanced standing upon presentation of a transcript of record indicating an overall grade point average of 2.0 in all college or university work attempted.

The advanced standing applicant who would not have been eligible for admission as a freshman because of subject deficiencies may establish his eligibility by the completion of course work in the deficient area(s) and the maintenance of a grade point average of 2.0 or better. The advanced standing applicant who would not have been eligible for admission as a freshman because of scholarship deficiencies may establish his eligibility by completion of a minimum of 84 quarter hours of transferrable course work at an accredited college or university with an overall grade point average of 2.4 or better. The advanced standing applicant who would not have been eligible for admission as a freshman because of both subject and scholarship deficiencies may establish his eligibility by completing a minimum of 84 quarter hours of transferrable course work at an accredited college or university with an overall grade point average of 2.4 or better, and the removal of the deficiencies in subject requirements. High school subject deficiencies can be waived in an amount not exceeding two high school units.

Requirements for Non-California Residents

In addition to the regular advanced standing requirements cited above, a non-resident applicant for admission to advanced standing must have maintained a grade point average of 2.8 or better in college courses offered for transfer credit. The non-resident applicant must have maintained a high school grade point average of 3.4 or better, with no subject deficiencies, in order to qualify with less than 84 hours of credit.

Transfer Credit

The breadth requirements of the Irvine campus are designed to avoid extremes of narrow specialization and superficial generalization. Rather than prescribing specific courses or areas, the faculty simply states that a given portion of one's course work should be in areas outside the major. At UCI this entails at least six courses taken in one school other than that in which the major department occurs, and at least three courses in each of two other schools outside the major. Such courses may be taken at the University of California or elsewhere.

Transfer students may satisfy the 6-3-3 breadth requirement, in full or in part, by course work of corresponding content and purpose in their own institutions. (See Academic Plan.) Those from colleges on the semester calendar may meet these by appropriate groups of four courses and two courses, respectively.

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 6-3-3 requirement of UCI. Students who transfer from a junior college and who have met the general breadth requirements of any campus of the University of California will also be considered to have met the 6-3-3 requirement. Students who, upon transfer, have not completed whatever breadth requirements may be in progress for another campus of the University of California may elect to complete at UCI either that program or the 6-3-3 requirement.

The above policies pertain only to the 6-3-3 breadth requirements. Courses applicable toward school and major requirements must be more precisely equated in content and in unit value. Students attending a California junior college should consult their counselors to determine which junior college courses are appropriate and are accepted toward the satisfaction of the breadth requirements, the school requirements, or the departmental requirements of the Irvine campus, as well as requirements of other colleges in the University of California.

4-Year Institutions— The University grants unit credit for courses consistent with its curriculum that have been completed in colleges or universities accredited by appropriate accrediting agencies.

California Junior Colleges—As an integral part of the system of public education of California, the University accepts at full value approved transfer courses completed with satisfactory grades in public junior colleges of the state. However, after a student has earned 70 semester hours (105 quarter hours) of course work acceptable toward the degree, no further credit will be granted by the University for courses completed at a junior college.

University of California Extension—Courses bearing numbers prefixed by X, XB, XD, XI, XL, XR, XSB, XSC, and XSD yield credit toward the Bachelor's degree, and are rated on the same basis as courses taken in residence at any accredited collegiate institution. The decision regarding the acceptability of extension courses taken at an institution other than the University rests with the Office of Admissions. The decision regarding the applicability of such course work to degree requirements rests with the faculty of the particular school in which the student plans to enroll.

Satisfaction of Breadth Requirements through transfer credit—Students who transfer from a four-year institution and who have met the general breadth requirements of that institution will be considered to have met the breadth requirements of UCI. Students who transfer from a junior college and who have met the general breadth requirements of any campus of the University of California will be considered to have met the breadth requirements of UCI. Students who, upon transfer, have not completed these breadth requirements, may elect to complete those in progress at the institution from which they transfer or those of UCI.

Course equivalencies of transfer credit—Students transferring to UCI with advanced standing credit from an institution on the semester system may, in general, determine the course equivalency of their transfer work as it applies to the breadth requirement by equating two courses at the semester institution with three courses at UCI.

Unit equivalencies of transfer credit—Students transferring to UCI with advanced standing credit from an institution on the semester system may determine the unit equivalence of their transfer work as it applies toward admission and toward the degree by equating one unit at the semester institution with 1½ units at UCI.

Advanced Placement Examinations—Advanced Standing credit of 10 quarter units will be granted by the Office of Admissions for Advanced Placement Examinations completed during the eleventh or twelfth year of high school, where the composite score is 3, 4, or 5. Advanced placement may be granted by the dean of the school in which the student enrolls.

ADMISSION TO LIMITED OR SPECIAL STATUS

The *Limited or Special* student is enrolled for a specified period of time determined at the time of admission. The applicant who seeks eventual admission to

regular status in a professional school is enrolled in that school, or in the appropriate undergraduate school. He may be admitted only upon the approval of the dean of the school. The dean of the school is responsible for the specified program of courses and for the maintenance of an academic record which may be specified when the program is approved. Any deviation from the planned program or any scholarship deficiency incurred while pursuing it will result in the cancellation of the student's *Limited or Special* status and will render him subject to dismissal. No student will be admitted to *Limited or Special* status for the purpose of raising a grade point average to qualify for admission to the University as either a regular undergraduate or as a graduate.

Note: Students with no specific degree plans or goals are encouraged to enroll in courses through University Extension.

ADMISSION FOR A SECOND BACCALAUREATE DEGREE

Admission as a candidate for a second Baccalaureate Degree is normally discouraged. However, the University recognizes that complete changes in objective may occur which necessitate a second undergraduate degree. Applicants must be fully eligible for admission to the University, and their record must indicate strong probability of academic success in the new area. Admission is subject to the approval of the dean of the school in which work will be taken, and the Admissions Officer.

ADMISSION OF FOREIGN STUDENTS

The credentials of an applicant for admission from another country in either undergraduate or graduate status are evaluated in accordance with the general regulations governing admission. The completed application, official certificates, and detailed transcripts of record should be submitted to the Office of Admissions several months in advance of the opening of the quarter in which the applicant hopes to gain admittance.

English Proficiency

An applicant from another country whose native language is not English will be admitted only after demonstrating that his command of English is sufficient to permit him to profit by instruction in the University. Foreign students whose schooling has not been in English must take the Test of English as a Foreign Language (TOEFL). Arrangements to take the test may be made by writing directly to TOEFL, Educational Testing Service, P.O. Box 592, Princeton, New Jersey 18540, U.S.A. Results of the test should be forwarded to the Office of Admissions.

Language Credit

An applicant from another country whose native language is not English is given college credit in his own language and literature only for courses satisfactorily completed in his country at institutions of college level, or for upper division or graduate courses taken in the University of California, or in another English speaking institution of approved standing.

Foreign Student Advisor

The University maintains an Office of Special Services to assist foreign students with problems of a non-academic nature. Foreign students are encouraged to contact that office for assistance should the need arise.

ADDITIONAL POLICIES RELATING TO ADMISSIONS

Rules Governing Residence

Students who have not been bona fide legal residents of California for more than one year immediately prior to the opening day of the quarter in which they register are charged, along with other fees, a tuition fee of $400 per quarter. (Government Code Section 244, Education Code Section 23055, and 23057 and Standing Orders of The Regents.) Legal residence is the combination of physical presence and the intention of making the state one's permanent home. New and readmitted students are required to complete a Statement of Legal Residence, a form that is available at the time of registration. Their status is determined by the Attorney in Residence Matters, 590 University Hall, University of California, Berkeley 94720, or by his deputy in the Registrar's Office. All correspondence concerning residence should be addressed to that official as he has the sole authority to determine residence classification.

A provisional classification made at the time of admission or readmission is subject to review and decison of the attorney..

The attention of the following students is directed to the fact that presence in California for more than one year does not, in itself, entitle them to resident classification: (1) Those under 22, whose parents are not California residents; (2) Veterans who were not California residents at the time of entry into the Armed Forces; (3) Alien students who must first qualify for permanent residence status according to the applicable laws of the United States. Exemption from payment of the tuition fee may be granted to the unmarried minor whose parent is in the active military service of the United States and is stationed in California on the opening day of the quarter for which the minor registers.

Those classified incorrectly as residents are subject to reclassification as non-residents. If incorrect classification resulted from false or concealed facts, the student is subject to University discipline and is required to pay all back fees he would have been charged as a non-resident. Resident students who become non-residents must immediately notify the Attorney in Residence Matters or his deputy. Application for a change in classification with respect to a previous quarter is not received under any circumstances.

Medical and Physical Examinations

New students and students returning to the University after an absence of two or more quarters are required to have a health clearance by the Student Health Service before their enrollment is completed.* All new students are required to have a completed medical history and physical examination performed by their own physician within 90 days of enrollment. In addition, each student must present a certificate verifying successful vaccination against smallpox within three years prior to registration, and a report of a tuberculosis skin test and recent tetanus immunization. In a few specialized curriculum, students may be required to have additional examination and supplemental immunization which will be performed by the Student Health Service.

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*Students absent from the campus as participants in the University's Education Abroad Program must comply with this requirement upon their return to the campus.

REGISTRATION AND ENROLLMENT

New and reentering students receive instructions regarding registration with their Notice of Admission or in a separate mailing. The dates of the start of each quarter are listed in the calendar on page 6 of the catalogue. The official schedule of classes is available prior to registration each quarter. Registration is not final and official until all steps have been completed, including the payment of fees. Each student is responsible for the courses in which he is enrolled each quarter.

Registration

A student must be admitted officially to UCI before he may register and enroll in classes.

A student registers and enrolls in new classes each quarter. While specific directions are published for each registration period, the basic steps are:

1. Procure registration packet.
2. Pay fees.
3. Consult academic advisor.
4. File completed registration packet and class cards at Registrar's Office.

Registration packets and instructions for early enrollment will be available to continuing students toward the end of each quarter. Bulletin boards will announce scheduled dates for early enrollment.

Early registration and enrollment are regarded as final unless cancelled by the student prior to the first day of the quarter. Fees will be refunded in accordance with the schedule described on page 202.

Continuing students who do not wish to take advantage of the early enrollment opportunity will register and enroll at the same time as new students.

Identification Card

At the time of registration, each student will receive an identification card which is evidence that he is a regularly enrolled student at UCI. If the card is lost, a duplicate may be obtained from the Registrar's Office for $3.00.

Course Limitations

An undergraduate student is required to take a minimum of three courses each quarter, unless an exception is approved by the dean of his school. However, students are cautioned not to overload their program . . . a heavy course load is no excuse for poor scholarship.

While three courses per quarter is the minimum load to be considered a full-time student by the University, normal progress toward a degree cannot be achieved by completing only three courses each quarter over the normal twelve-quarter period.

Change of Program

During the first two weeks after the beginning of a quarter a student may add courses or drop those in which he is enrolled, with the permission of the instructor and by *notifying the Registrar of the change.* (A change of program form is available from the Registrar.)

From the second to the sixth week in a quarter, students in good standing in a course may drop that course, but no courses may be added. To drop a course during

this period, it is necessary to obtain the instructor's signature indicating the student's standing, and to file the form with the Registrar.

If a student merely discontinues his attendance and does not officially drop a course for which he is enrolled, a final grade of "F" will be assigned.

After the sixth week in a quarter, a student may drop courses only with the permission of the dean of his school.

At no time may the student exceed the maximum of courses permitted (five, excluding Physical Education) nor drop below the minimum (three) without the permission of the dean of his school.

Every student enrolled in a laboratory course in which equipment is issued is responsible for the equipment until given a release by the person in charge. Failure to return equipment when dropping a course will cause the student to be charged for all equipment issued to him and may cause a lapse in his status as a student.

Concurrent Enrollment in Other Institutions

Concurrent enrollment in regular sessions at another institution or in University Extension while enrolled on the Irvine campus is permitted only when approved by petition *in advance* by the student's dean.

Withdrawal from the University

A student withdrawing from the University during a quarter must file a Notice of Withdrawal and turn in his identification card to the Registrar's Office before leaving the campus. In cases of illness or emergency, notice of withdrawal should be made as soon as the student decides not to continue.

The importance of giving proper notice before discontinuing attendance cannot be overemphasized. If proper notice is not filed, the student will receive failing grades in all courses and jeopardize his eligibility to reenter the University of California and his admission by transfer into another institution.

Each student is responsible for the courses in which he is enrolled for the quarter. His grades are final, as reported at the close of the quarter. Only at the time a student withdraws officially during a quarter may he request cancellation of records for that quarter.

A student who is continuing to the end of a quarter, even though he may not plan to return for the next quarter, need not file a Notice of Withdrawal.

Lapse of Status

Lapse of status means the enforced withdrawal of a student from the University and may be caused by:

1. Failure to respond to official notices.
2. Failure to settle financial obligations when due, or to make satisfactory arrangements with the cashier if payment cannot be made.
3. Failure to complete the physical examination.

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 he is entitled to no further services from the University except assistance toward reinstatement.

Upon proof of removal of the reason for the status lapse, and payment of a $10.00 reinstatement fee, the student will be reinstated in the University.

Retention of Student Records

A record of academic work completed is prepared for each student and is retained permanently by the University. However, the student should be aware that

secondary records which affect the preparation of the permanent record are retained for a very limited period of time. Such records as program changes and petitions of all types serve a limited purpose and generally reflect entries made on the student's permanent academic record.

The student is hereby advised to check his copy of the permanent record carefully each quarter and to report any discrepancies to the Registrar immediately. After a period of one year, it is assumed the student accepts the accuracy of the record, and supporting source documents may be destroyed.

Transcript of Records

A $1.00 fee is charged for each transcript of a student's record. Application for a transcript of record should be made to the Registrar several days in advance of the time needed.

An application for a transcript must bear the student's signature. Transcripts will be released only upon signed request of the student.

Transcripts *will not* be issued for a student whose status has lapsed or who has not made satisfactory arrangements regarding bills due or other indebtedness to the University.

Grades and Scholarship Requirements

Results of a student's work and the quality of scholarship are reported in the following grades which are governed by Academic Senate policy:

A, excellent; B, good; C, average; D, lowest passing grade; F, not passing; I, (incomplete, undetermined); P, passed; NP, not passed.

Grade points are assigned as follows: A=4; B=3; C=2; D=1; Fg0; I=0; P=0; NP=0.

All grades except Incomplete are final when filed by an instructor on his course report at the end of the quarter. The grade of Incomplete may be assigned when a student's work is of passing quality but is incomplete because of circumstances beyond his control, and he has been excused in advance from completing the quarter's work. To replace this grade, a student must undertake an examination equivalent to the final examination, or must complete some required assignment.

When the grade of I is converted to a passing grade, the student will receive course credit and the appropriate grade points.

To determine grade point average, divide the total number of grade points earned by the total value of courses attempted, excluding courses in which grades of P/NP are recorded.

Passed-Not Passed Option

Students in good standing are encouraged to venture into courses beyond their area of concentration. If they hesitate to take such courses because they are uncertain about their aptitude or preparation, they may enroll on a Passed-Not Passed basis.

A student who earns a grade of C or better will have the grade recorded as P. If a P grade is earned, he will receive course credit toward the total courses passed, but the grade will not be included in determining his grade-point average. If an NP is earned, the student will *not* receive course credit toward the total courses earned, but the NP will not affect his grade point average.

A student in good standing is authorized to undertake one course each term on the average on a Passed-Not Passed basis. This means that a student enrolled in each of twelve quarters may take a maximum of twelve courses for Passed-Not Passed.

Transfer students, accordingly, may not average more than one Passed-Not Passed course for each quarter of residence.

The decision to enroll in a course on a Passed-Not Passed basis must be made at the time the student enrolls. The student is responsible for notifying the Registrar *during the first two weeks of the quarter. At the end of the second week, no changes will be honored.*

Courses taken on this basis count toward the 45-course requirement for graduation and toward meeting the University's breadth requirement. However, such courses may not be used to satisfy specific course requirements of the University, school, or department, unless specially authorized by the dean involved.

Students on probation must take at least three courses for letter grades during the quarter, and cannot enroll for Passed-Not Passed grading until they have removed deficiencies in their grades.

Final Grades

As soon as possible after the end of each quarter, final grades will be made available to the student. Course reports filed by instructors at the end of each quarter are final.

Minimum Scholarship Requirements—Undergraduate Students

For good standing and for graduation, an undergraduate must earn at least twice as many grade points as the value of course work attempted; i.e., a C average.

The scholastic status of all Irvine undergraduates is governed by the following provisions:

Probation

An undergraduate student is normally subject to academic probation if at the end of any term his grade point average for that term, or his cumulative grade point average, is less than 2.0 computed on the total of all courses undertaken in the University. A student may also be placed on probation if he fails to make reasonable progress toward a degree. Under most circumstances a full-time student should meet all degree requirements within twelve quarters of college-level work. A student will be removed from probation if he achieves an overall grade point average of 2.0 at the end of his next quarter of attendance.

Dismissal

A student whose grade point average falls below 1.5 for any quarter or who after one quarter on probation has not achieved a grade point average of 2.0 is subject to dismissal. A student will be allowed to continue, on probation, if his record indicates that he is likely to achieve the required scholastic standing within a reasonable time. A student may also be dismissed for failure to make reasonable progress toward a degree. Ordinarily students will not be dismissed for academic reasons until they have completed three quarters of work at the University. However, a student whose academic deficiencies are serious and whose record indicates that he has failed to apply himself toward the correction of those deficiencies may be dismissed at the end of any quarter. Students who are dismissed may apply for readmission, subject to the approval of the dean of their school.

Probation is *not* a necessary step between passing and dismissal. If a student becomes subject to dismissal, his grades and records will be carefully reviewed by a faculty committee which will consider the student's total performance.

If the committee feels the student will not be able to overcome his academic deficiency, it will recommend dismissal.

The faculty's main interest is the education of the student, and any dismissals necessary will be made for the good of the student. The committee also will have the power to suspend dismissals, continue probation, or authorize the return of a dismissed student to probationary status. Students on probation or subject to dismissal shall be under the supervision of the faculty of the school.

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

After completing a transfer the dismissed or probationary student is subject to the supervision of the faculty on the new campus.

Minimum Scholarship Requirements—Graduate Students

For good standing and award of an advanced degree, a graduate student is required to maintain a grade point average of 3.0 (B), computed on the total of all courses undertaken at the University.

A graduate student is subject to dismissal if his overall average falls below B at any time, or if his work in any two consecutive terms falls below a B average.

Grading—Graduate Students

In addition to the regular letter grades described earlier, the following is applicable to graduate students only:

Satisfactory-Unsatisfactory (S/U). Individual study and research, or other individual graduate work undertaken by a graduate student, may be evaluated by means of the grades Satisfactory or Unsatisfactory. No credit will be allowed for work graded Unsatisfactory.

Passed-Not Passed. Graduate students are allowed to take one course per quarter on the Passed-Not Passed basis. These courses may not be applied toward any degree requirement.

Removal of Deficient Grades

A student may repeat only those courses in which he received a grade of D, F, or Not Passed. Degree credit for a course 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 who repeats a course, only the most recently earned grades and grade points shall be used for the first 16 units repeated. In the case of further repetitions, the grade point average shall be based on all grades assigned and total units attempted.

A course with an I (Incomplete) will be recorded in the total of courses taken during the quarter. If the work is made up, appropriate grade points will be assigned.

Credit by Examination

An enrolled undergraduate student in good standing may obtain credit for courses by taking special examinations at stated intervals. Lists of courses offered for credit by examination are available for the dean of each school within the University.

An instructor retains the prerogative (a) to decide whether his course can be taken by examination, (b) to determine the form such an examination shall take, and (c) to stipulate whether grades will be reported as Passed/Not Passed or as A, B, C, D, or F. It is the instructor's responsibility to state his decision on these matters and the student's responsibility to obtain this information before an examination for course credit is approved.

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; that is, if he is not satisfied with the grade he receives on the examination, he 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 his record in the same manner as regular courses of instruction.

A student wishing to take an examination for course credit may obtain a petition from the Registrar and submit it for approval to the dean of the school offering the course.

Duplication of Credit

If a student is permitted to repeat a course or take another course which is considered a duplication, it is the responsibility of the student to notify the Registrar's Office during the first two weeks of the quarter in which the work is being repeated so that the proper deduction can be made in his total hours of credit.

Intercampus Transfer—Undergraduate

An undergraduate student who is registered on any campus of the University, or who was previously registered in any regular session of the University and has not since been registered at another institution, may apply for transfer to another campus of the University by filing the appropriate forms on the campus where he was last registered in regular session. The Intercampus Transfer application form and an application for transcripts of record may be obtained from the Office of the Registrar and must be filed within the stated periods for filing applications.

Intercampus Transfer Application Forms are available from the Registrar's office and must be filed with that office by March 1 for the fall quarter, by September 1 for the winter quarter, and by December 1 for the spring quarter.

Completed forms will be forwarded to the campus to which the student wishes to transfer, together with a complete copy of the student's record (including high school and all advanced standing). A fee of $10.00 is required for all Intercampus Transfer applications filed with the Registrar's Office.

Intercampus Visitor—Undergraduate

A student in good standing may obtain an application for Intercampus Visitor program from the Registrar's Office, and register on any other general campus of the University as an Intercampus Visitor for a *maximum of one quarter.* If you wish to transfer to another campus of the University for more than one quarter, you must file an application for Intercampus Transfer.

Intercampus Exchange Program—Graduate

A graduate student registered on any UC campus who wishes to take courses on another campus may become an Intercampus Exchange Graduate Student with the approval of his advisor and the Dean of the Graduate Division on the campus to be visited. Because he has not transferred his enrollment, he continues to be considered a graduate student in residence on his home campus and is not admitted to the Graduate Division at the host campus.

Application forms for the Intercampus Exchange Program for graduate students may be obtained from the Graduate Division Office on the student's home campus.

FEES AND EXPENSES

Exact figures regarding student expenses at the Irvine campus of the University of California are difficult to predict. Costs will vary according to personal tastes and the financial resources of the individual student. Some expenses are common to all students; some are optional and will vary considerably.

Miscellaneous Fees

A schedule of miscellaneous fees and other information pertaining to expenses is available from the Cashier. All fees are subject to revision by The Regents of the University of California.

University Registration Fee

The University Registration Fee is $100.00 per quarter, for both graduate and undergraduate students. This fee, which must be paid at the time of registration, covers certain expenses of students for use of athletic and gymnasium facilities and equipment, for registration and graduation, for all laboratory fees, and for such consultation, medical advice and hospital care, or dispensary treatment as can be provided by the Student Health Service. No part of this fee is remitted to students who may not desire to make use of all or any of these privileges. The $50.00 advance deposit on the Registration fee is applied to the full fee when the student registers. The registration fee is subject to change by action of The Regents of the University of California.

Associated Students Activities Fee

In fall 1966 the student body voted to establish a $7.00 activity fee per quarter to be used by the ASUCI to provide social activities, lectures, forums, concerts, and other activities at either a reduced charge, or no charge, to UCI students. The fee is collected by the University for the Associated Students during registration each quarter. This fee is non-refundable after the beginning of Orientation Week or after the first day of class instruction during quarters when there is no Orientation Week.

Parking Fee

A fee of $3.00 per month is assessed for the parking of cars on campus.

Non-Resident Tuition

Tuition is free to every student who has been a legal resident of the State of California for a period of one year immediately preceding the opening day of the quarter for which he seeks to enroll. Every student who has not been a legal resident for this period is classified as a non-resident and is assessed a non-resident tuition of $400.00 per quarter, payable at registration. (See Rules Regarding Residency Determination.)

For the undergraduate student enrolled in less than three courses, the non-resident tuition fee is $136 per course or the proportionate part for a fractional course. For graduate students the tuition is $400 per quarter regardless of the number of courses undertaken. There is no reduction in incidental or ASUCI fees.

Subject A Fees

A fee of $45.00 is paid by all students enrolling in the Subject A course.

Average Annual Expenses

The following is intended only as a guide in computing the average annual expenses for three quarters of attendance. (For quarterly breakdown, divide by three.) Fees are due and payable at the beginning of each quarter.

University Registration Fee	$ 300.00
Associated Students Fee	21.00
Room and Board in University Residence Halls (20 meals per week)	1130.00
Books and Supplies	150.00
Personal Expenses (laundry, clothing, recreation transportation and miscellany)	450.00
Average Annual Expenses (California resident)	2051.00
Non-resident Tuition	1200.00
Average Annual Expenses (non-California resident)	3251.00

Fee Refunds

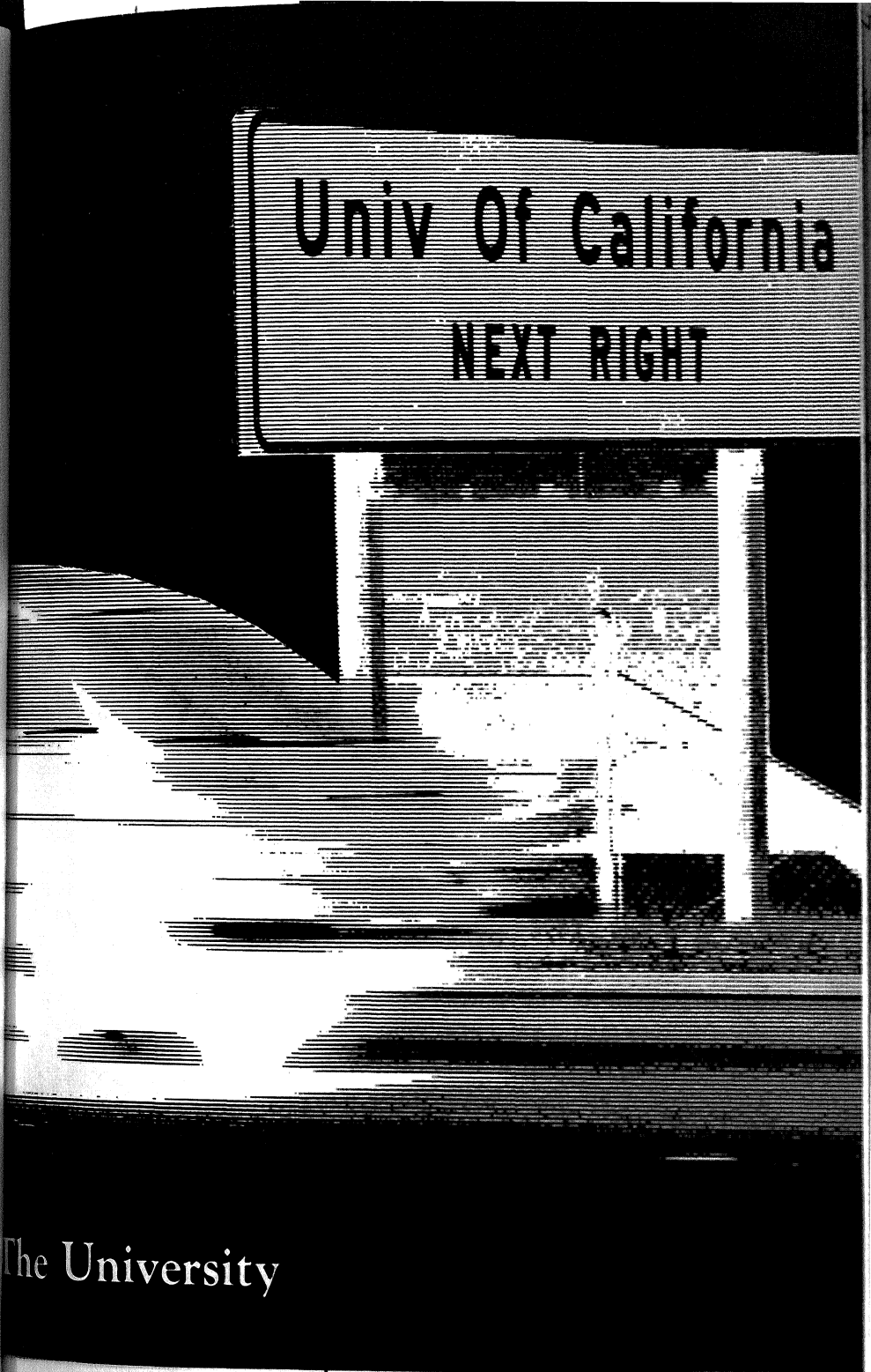
A student who registered early may cancel his registration and receive full refund* of incidental fees and non-resident fees (if such have been paid) before the first day of the quarter. Student activities fees are not refundable after Orientation Week begins in the fall quarter or in other quarters after instruction begins.

After instruction begins, a withdrawal form is necessary. Students who withdraw from the University during the first five weeks of instruction will receive refunds of incidental fees and non-resident tuition fess on the following basis: effective with the first day of instruction.

First two weeks	80% of amount paid*
Third week	60% of amount paid*
Fourth week	40% of amount paid*
Fifth week	20% of amount paid*

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 his registration card to the Registrar at the time of withdrawal.

*Less $50.00 non-refundable Acceptance of Admission Fee



The University

The University

UNIVERSITY OF CALIFORNIA

A Brief History

The promise of a University of California is contained in the State's Constitution, drafted in Monterey in the gold rush year of 1849. California was admitted to the Union the following year, but almost twenty years were to pass before the hope for a public university was realized.

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

In 1853 Congress 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 and the mechanic arts.

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 Today

From its beginning in Berkeley, the University of California has grown to total nine campuses: Berkeley, Davis, Irvine, Los Angeles, Riverside, San Diego, San Francisco, Santa Barbara, and Santa Cruz. The University also maintains research stations, field stations, and Extension centers in more than 80 locations throughout California.

Under contract with the Atomic Energy Commission, the University operates two off-campus installations for atomic research: A component of the Lawrence Radiation Laboratory at Livermore, and the Los Alamos Scientific Laboratory at Los Alamos, New Mexico. Other major research installations are located at Mount Hamilton (the Lick Observatory), White Mountain (high altitude research), Hat Creek (radio astronomy research), Bodega Bay (marine laboratory), Oakland (Naval Biological Laboratory), and Richmond (engineering and forest products research). Among nearly two dozen other principal field and research stations are: Antelope Valley Field Station, Los Angeles County; Blodgett Forest, El Dorado County; Philip Boyd Desert Research Center, Riverside County; Deciduous Fruit Field Station, Santa Clara County; Frances Simes Hastings Natural History Reservation, Monterey County; Hopland Field Station, Mendocino County; and Kearney Horticultural Field Station, Fresno County.

Located in San Francisco are the affiliated Hastings College of Law and the San Francisco Art Institute. The California College of Medicine in Los Angeles became part of the University in 1965 and is in the process of relocation to the Irvine campus.

Student enrollment is soon expected to surpass 100,000. Nearly 85 percent of

all students are residents of California, while the remainder come from other states of the nation and from about 100 foreign countries.

The University of California leads all institutions in the world in the number of Nobel Laureates on its faculty. It also has on its staff more members of the National Academy of Sciences than any other university, and there are more than 500 recipients of Guggenheim Fellowship Awards among the faculty. Its library is ranked with the best in the nation in quality and in the size of its collections.

The University performs many services in addition to its campus programs of instruction. It is the primary state-supported academic agency for research. Public services include medical and dental clinics, information services for agriculture, and a broad program of continuing education for adults in the arts, business, and the professions.

University Administration

The organization and government of the University is entrusted under the State Constitution to a corporate body, The Regents of the University of California. The Board of Regents is composed of twenty-four members, sixteen appointed by the Governor of California for sixteen-year terms and eight who are members because of the offices they hold. The Regents 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 of the University is the executive head of the entire University. He is appointed by The Regents and is directly responsible to them.

Each of the nine campuses of the University 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 President has delegated substantial additional authority to the Chancellors, including appointment of faculty (subject to the approval of The Regents), department chairmen, directors of local instructional or organized research units, and other personnel.

The Academic Senate, consisting of the faculty and certain administrative officers, participates in the administration of academic matters. The Senate determines conditions for admission of students, and for granting certificates and degrees. It authorizes and supervises all courses of instruction in the academic and professional schools and colleges, and exercises general supervision of the discipline of students.

Over the years the University of California has distinguished itself among the nation's educational institutions, and the friendly rivalry among the campuses does not diminish the spirit of cooperation and sense of common purpose in furthering the University's academic and cultural stature.

THE IRVINE CAMPUS

The University of California, Irvine, rises above the rolling rangelands of coastal Orange County's San Joaquin Hills, only a few miles from the Pacific Ocean. UCI's striking multi-storied buildings take shape about a circle, radiating outward into a quiet, pastoral setting.

The history of the Irvine campus began early in the 1950's when the University's Board of Regents concluded from enrollment and population projections that a new campus would be needed in the Orange County area. A gift of 1,000 acres of Irvine Ranch land was accepted by The Regents and the deed was recorded January 29,1961. The Regents purchased an additional 510 acres from the Irvine Company in January 1964 to provide for future campus housing and ancillary services.

Single ownership of the surrounding lands presented an unusual opportunity for master planning the campus and community. Irvine lies at the heart of a rapidly developing metropolitan area with an estimated two million population within a 20-mile radius, including parts of southern Los Angeles County, northern San Diego County, and Orange County. The campus is about three miles from the city of Newport Beach and is connected by a modern freeway system to the city of Los Angeles, about 40 miles to the north.

Classes first opened in October 1965 with 1,589 students, freshmen through post-doctoral. Future enrollment estimates: 1969-70, 3535 undergraduates, 1481 graduates (includes College of Medicine); 1970-71, 4150 undergraduates, 1661 graduates (includes College of Medicine). Enrollment is projected at a steady annual growth until 27,500 is reached about 1990.

There is an air of openness at Irvine: Openness through experimentation, innovation, individual study, computer-assisted instruction, and the development of new programs. The student has an active role in the process and a good deal of freedom.

It is a rich cultural and recreational environment. UCI offers frequent presentations in art, dance, concert, and repertory, while the familiar battlecry "ZOT!" urges the Anteaters to victory in a very successful athletics program. Recreation programs for students are enhanced by facilities such as tennis courts, a swimming pool, gymnasium, ballfields, and indoor handball courts. Off campus, the beach area is, of course, the focal point for activity. But the proximity of mountains, desert, and the Los Angeles Civic Center enlarges the circle of variety and opportunity.

For further information about the Irvine campus contact the Public Affairs Office, which is responsible for public information, publications, University and community relations, gifts and endowments, alumni relations, public ceremonies, campus tours, the Speakers' Bureau, and liaison with support organizations: The Friends of UCI, Friends of the UCI Library, University Gallery Associates, UCI Town and Gown, Big I Boosters, The UCI Foundation, Oceanology Associates, Public Relations Advisory Council, UCI Industrial Associates, the UCI Alumni Association, and the Associated Alumni of the UCI—California College of Medicine.

The Regents of the University

Regents Ex Officio

RONALD REAGAN
Governor of California and President of The Regents

ED REINECKE
Lieutenant Governor of California

ROBERT T. MONAGAN
Speaker of the Assembly

MAX RAFFERTY
State Superintendent of Public Instruction

ALLAN GRANT
President of the State Board of Agriculture

JOSEPH A. MOORE, JR.
President of the Mechanics' Institute

WENDELL W. WITTER
President of the Alumni Association of the University of California

CHARLES J. HITCH
President of the University

Appointed Regents

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EDWARD W. CARTER
MRS. RANDOLPH A. HEARST
JOHN E. CANADAY
PHILIP L. BOYD
NORTON SIMON
WILLIAM E. FORBES
WILLIAM M. ROTH
MRS. EDWARD H. HELLER
FREDERICK G. DUTTON
WILLIAM K. COBLENTZ
DEWITT A. HIGGS
W. GLENN CAMPBELL
WILLIAM FRENCH SMITH
ROBERT O. REYNOLDS
DEAN A. WATKINS
WILLIAM C. FARRER
Regent Designate
CHRISTIAN E. MARKEY, JR.
Regent Designate

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Governor of California, President
DEWITT A. HIGGS
Chairman
WILLIAM FRENCH SMITH
Vice Chairman
THOMAS J. CUNNINGHAM
General Counsel
ROBERT M. UNDERHILL
Treasurer, Emeritus
OWSLEY B. HAMMOND
Treasurer
MISS MARJORIE J. WOOLMAN
Secretary

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Executive Vice President
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Vice President—Academic Affairs
ANGUS E. TAYLOR
Vice President—Administration
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Vice President—Agricultural Sciences
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Vice President—Planning and Analysis
FREDERICK E. BALDERSTON
Vice President—University Relations
TRAVIS CROSS
Dean of University Extension
EDWARD B. ROESSLER
Acting

University-wide Officers Emeriti

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Vice President of the University, Emeritus, and Dean of the College of Agriculture, Emeritus
CLAUDE B. HUTCHISON
Vice President of the University, Emeritus
HARRY R. WELLMAN
Vice President and Treasurer of The Regents, Emeritus
ROBERT M. UNDERHILL
Vice President—Governmental Relations and Projects, Emeritus
JAMES H. CORLEY

University Chancellors

Chancellor at Berkeley
ROGER W. HEYNS
Chancellor at Davis
JAMES H. MEYER
Chancellor at Irvine
DANIEL G. ALDRICH, JR.
Chancellor at Los Angeles
CHARLES E. YOUNG
Chancellor at Riverside
IVAN H. HINDERAKER
Chancellor at San Diego
WILLIAM J. MCGILL
Chancellor at San Francisco
PHILIP R. LEE
Chancellor at Santa Barbara
VERNON I. CHEADLE
Chancellor at Santa Cruz
DEAN E. MCHENRY

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Vice Chancellor—Academic Affairs
ROGER W. RUSSELL
Vice Chancellor—Student Affairs
JOHN C. HOY
Vice Chancellor—Business and Finance
L. E. COX
Provost, College of Medicine
W. BALLENTINE HENLEY
Special Advisor to the Vice Chancellor—Academic Affairs
RALPH W. GERARD
Assistant to the Chancellor and Public Affairs Officer
H. BRADFORD ATWOOD
Executive Assistant to the Chancellor
MRS. ELOISE KLOKE
University Librarian
JOHN E. SMITH
Dean of Students
ROBERT S. LAWRENCE
Registrar and Admissions Officer
JOHN W. BROWN
Assistant Director—Relations with School
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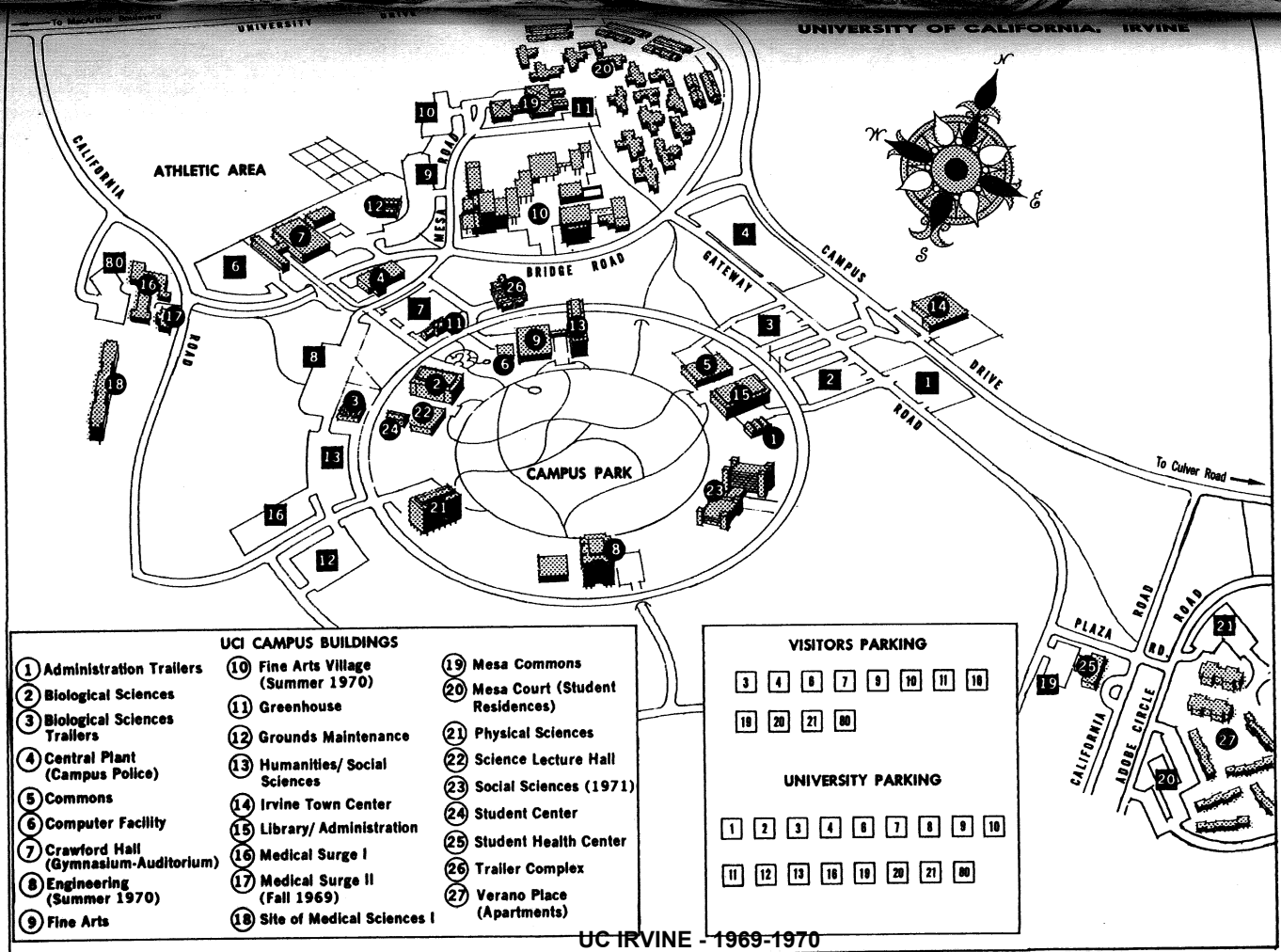
Business Manager
JAMES G. WILSON
Accounting Officer
ROBERT G. DAVIS
Construction Manager
EARL F. GRAHAM
Personnel Director
RALPH O. LAUE
Materiel Manager
EARL B. LUDWICK
Budget Officer
JOHN F. MCGERVEY
Campus Architect
CLIFTON C. MILLER
Physical Plant Administrator
C. O. REINHARDT
Director of University Extension
RICHARD N. BAISDEN



UCI CAMPUS BUILDINGS

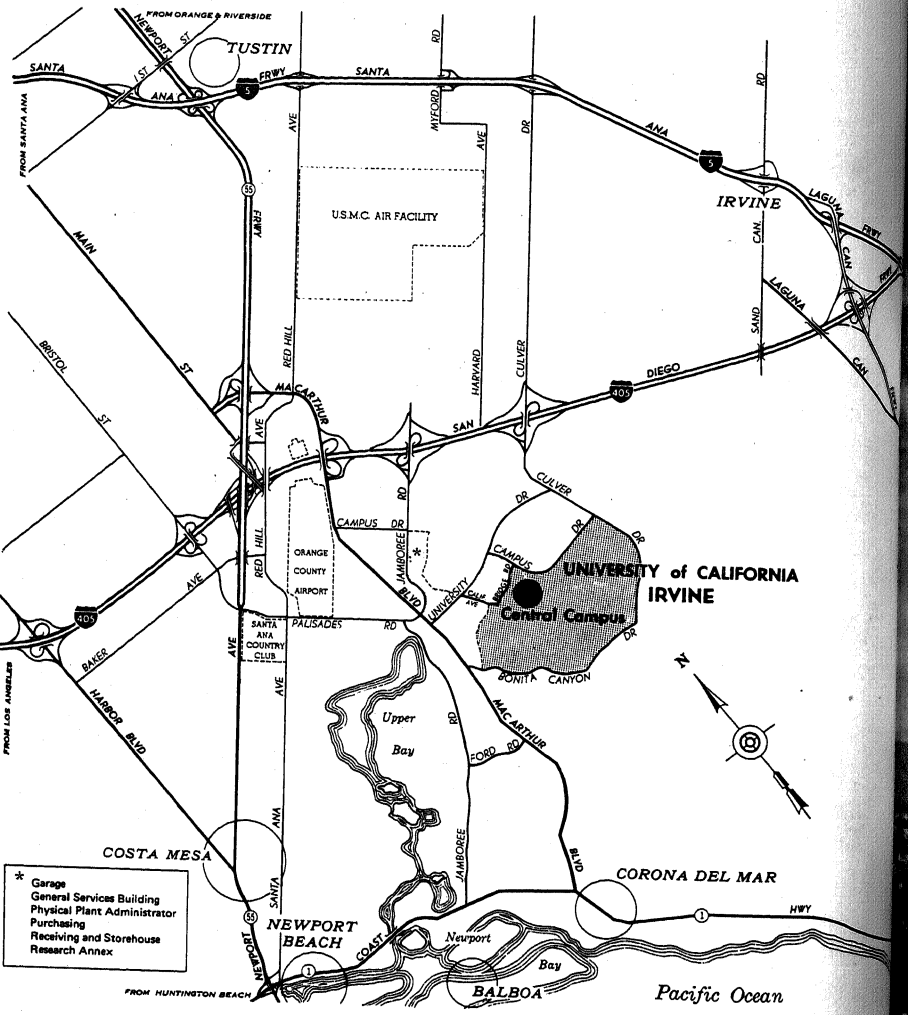
1. Administration Trailers
2. Biological Sciences
3. Biological Sciences Trailers
4. Central Plant (Campus Police)
5. Commons
6. Computer Facility
7. Crawford Hall (Gymnasium-Auditorium)
8. Engineering (Summer 1970)
9. Fine Arts
10. Fine Arts Village (Summer 1970)
11. Greenhouse
12. Grounds Maintenance
13. Humanities/ Social Sciences
14. Irvine Town Center
15. Library/ Administration
16. Medical Surge I
17. Medical Surge II (Fall 1969)
18. Site of Medical Sciences I
19. Mesa Commons
20. Mesa Court (Student Residences)
21. Physical Sciences
22. Science Lecture Hall
23. Social Sciences (1971)
24. Student Center
25. Student Health Center
26. Trailer Complex
27. Verano Place (Apartments)

VISITORS PARKING

3 4 6 7 9 10 11 18 19 20 21 80

UNIVERSITY PARKING

1 2 3 4 6 7 8 9 10 11 12 13 16 19 20 21 80



(Map courtesy of the Automobile Club of Southern California)